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SINGLE-STAGE EXPERIMENTAL EVALUATION OF TANDEM-AIRFOIL ROTOR AND STATOR BLADING FOR COMPRESSORS

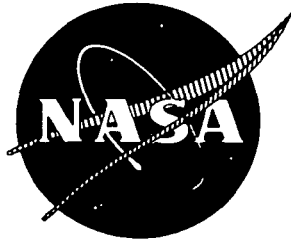
PART III - DATA AND PERFORMANCE FOR STAGE C

by J. A. Brent and D. R. Clemmons

**PRATT & WHITNEY AIRCRAFT
DIVISION OF UNITED AIRCRAFT CORPORATION
FLORIDA RESEARCH AND DEVELOPMENT CENTER**

**Prepared for
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION**

**NASA Lewis Research Center
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16. Abstract Stage C, comprised of tandem-airfoil Rotor C and tandem-airfoil Stator B, was designed and tested to establish performance data for comparison with the performance of conventional single-airfoil blading. Velocity diagrams and blade leading and trailing edge metal angles selected for the conventional rotor and stator blading were used in the design of the tandem blading. The rotor had an inlet hub/tip ratio of 0.8 and a design tip velocity of 757 ft/sec. At design equivalent rotor speed, Rotor C achieved a maximum adiabatic efficiency of 91.8% at a pressure ratio of 1.31. The stage maximum adiabatic efficiency was 86.5% at a pressure ratio of 1.31.					
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SUMMARY

A 0.8 hub/tip ratio, single-stage, axial-flow compressor, having tandem-airfoil blading, was designed and tested to establish performance data for comparison with the performance of conventional single-airfoil blading. Design velocity diagrams and blade leading and trailing edge metal angles selected for the conventional rotor and stator blading were used in the design of the tandem blading. The stage was designed with zero rotor prewhirl, constant rotor exit total pressure across the span, and axial discharge flow. Circular-arc airfoil sections were used for both the conventional rotor and stator blading and the front and rear airfoils of the tandem blading. The specific flow and rotor inlet Mach number were generally consistent with design practice for compressor middle stages; however, the blade loadings were appreciably higher.

At design equivalent rotor speed and flow, the tandem rotor achieved an adiabatic efficiency of 92% at a pressure ratio of 1.31 compared with respective design values of 90.8% and 1.32. At the same flow and rotor speed the tandem stage achieved an adiabatic efficiency of 86% at a pressure ratio of 1.29 compared with design values of 85.4% and 1.30. The peak efficiencies for both the rotor and stage were reached at approximately design equivalent flow.

INTRODUCTION

Advanced aircraft turbine engine propulsion systems will require light-weight, highly loaded axial flow compressors capable of achieving high efficiency over a wide range of operating conditions. Axial flow blower experience has indicated that tandem blading can be successfully employed to extend the efficient operating range of compressors. In 1955, H. E. Sheets (Reference 1) reported excellent efficiencies for a highly loaded axial flow blower comprised of a tandem-blade rotor. Favorable results were also reported by H. Linnemann (Reference 2) based on a series of axial flow blower tests involving both tandem-blade rotors and stators. The results for the tandem blading indicated a better efficiency at a higher pressure ratio than that achieved with equivalent conventional blading.

In principle, tandem blading offers improved performance over conventional blading by distributing the overall blade row aerodynamic loading between the airfoils in tandem. The front airfoil may also provide control of the inlet air angle to the rear airfoil at off-design conditions, which should reduce the overall total pressure loss and possibly delay wall stall.

The first objective of this program is to investigate the potential of tandem blading for extending the loading limit and stable operating range of a stage representative of a middle stage of an advanced high pressure compressor. The second objective is to determine the effect, if any, of loading split on the performance of tandem blading. A conventional rotor and stator, two dual-airfoil tandem rotors with differing loading splits, and a dual-airfoil tandem stator were designed and tested. This report presents the data and performance obtained with Stage C, which was comprised of tandem Rotor C and tandem Stator B. Rotor C was designed to have an equal loading split between the two airfoils in tandem and Stator B was designed with decreased loading on the front airfoil and increased loading on the rear airfoil. A discussion of the aerodynamic and mechanical design of the conventional single airfoil stage and the tandem airfoil configurations is presented in Reference 3. The overall and blade element performances for the conventional single airfoil blading are given in Reference 4.

DESIGN SUMMARY

Blading Design

Stage C was designed with zero rotor prewhirl, constant rotor exit total pressure across the span, axial discharge flow, and high blade loading. A rotor tip inlet Mach number of approximately 0.8 and a specific flow of 33 lb/sec-ft² were selected to be generally representative of current design practice for compressor middle stages.

To ensure a valid comparison between the conventional baseline Stage A and the tandem-blade stages, the design velocity diagrams selected for the conventional rotor and stator blading were used in the design of the tandem blading. The design velocity diagrams were calculated by means of a computer program that solves the continuity, energy, and radial equilibrium equations for an axisymmetric flow field. Radial gradients of enthalpy and entropy were included in the calculation, and the influence of wall and streamline curvature on the radial distribution of static pressure were taken into account.

Circular-arc airfoil sections were selected for the rotor and stator blading to be consistent with studies being conducted by NASA-Lewis Research Center (Reference 5). To ensure interchangeability with Stage A, radial distributions of overall axial chord for the tandem blading were maintained equal to the distributions selected for the Stage A blading. To minimize the number of variables to be investigated in the selection of Stage C metal geometry, the individual airfoil maximum thickness-to-chord ratio for each of the tandem-blade airfoils were maintained equal to the corresponding values selected for the Stage A blading. The individual airfoil chords for the tandem blades were arbitrarily set equal. The rotor camber angles were selected to provide approximately an equal distribution of lift between the front and rear airfoils. The stator camber angles were selected to provide a maximum differential in lift between the front and rear airfoils without exceeding a maximum suction surface-to-exit velocity ratio of 1.8 on the rear airfoil. The individual airfoils for both the rotor and stator were positioned so that:

1. The leading edge metal angle of the front airfoil and the trailing edge metal angle for the rear airfoil were equal to the leading and trailing edge metal angles, respectively, selected for Stage A.
2. There was zero axial overlap of the front and rear airfoils.
3. The passage width between the airfoils was approximately 10% of the front airfoil chord.
4. The passage between the airfoils would be slightly convergent (inlet-to-exit area ratio slightly greater than one).

Details of the Stage C blading aerodynamic and mechanical design are presented in Reference 3. The overall and blade element performance for the conventional single airfoil blading are given in Reference 4.

Design velocity diagram data, blade element geometry data, and design performance are presented in table I and table II for the rotor and stator, respectively. Symbols and performance variables are defined in Appendix C.

TEST EQUIPMENT

Compressor Test Facility

A schematic of the compressor test facility is shown in figure 1. The compressor is driven by a single-stage turbine, powered by exhaust gases from a J75 slave engine, with compressor speed controlled by means of the engine throttle. Air enters the compressor through a 103-foot combined inlet duct, plenum, and bellmouth inlet, and is exhausted through an exit diffuser to the atmosphere. The inlet duct contains a flow measuring orifice designed and installed in accordance with ASME standards. The area contraction ratio from plenum to compressor inlet is approximately 10 to 1.

Compressor Test Rig

A schematic of the compressor test rig is shown in figure 2. The flowpath dimensions are shown in figure 3. The hub/tip ratio at the rotor inlet is 0.798. The test section has a constant hub diameter of 32.85 inches, and the outer wall converges from a diameter of 41.15 inches at the rotor leading edge to 39.99 inches at the stator trailing edge. Rotor bearing loads are transmitted to the rig support through struts located in the inlet and exhaust case assemblies. The inlet struts are sufficiently far upstream so their wakes are dissipated ahead of the rotor. The stage design specifications of zero rotor prewhirl and axial discharge flow eliminated the need for inlet and exit guide vanes. Flowrate and/or backpressure was varied with a set of motor-driven throttle vanes located in the exhaust case.

Instrumentation

Instrumentation was provided to obtain overall and blade element performance data for each blade or vane row. The locations of axial instrumentation stations are indicated in figure 3. Axial and circumferential locations of the instrumentation are shown in figure 4. Dual instrumentation was provided at each axial station, except the rotor inlet, to provide a redundant set of measurements.

Airflow was measured with an ASME standard thin-plate orifice located in the compressor facility inlet duct. Compressor rotor speed was measured with an electromagnetic sensor mounted adjacent to a 60-tooth gear on the rotor shaft. Gear tooth passing frequency was displayed as rpm on a digital counter. Rotor rpm was also recorded on magnetic tape. Inlet total temperature was measured in the inlet plenum by means of six half-shielded total temperature probes; inlet total pressure was measured in the plenum by means of five Kiel-type total pressure probes. Six equally spaced static pressure taps were located on both the inner and outer walls at instrumentation Station 0.

Radial distributions of static pressure at the rotor inlet and exit and at the stator exit were measured by means of 8-degree wedge probes (figure 5). Four inner wall and four outer wall static pressure taps, approximately equally spaced, were located at each of these stations. The rotor exit (i.e., stator inlet) and stator exit instrumentation stations also had four inner and four outer wall taps

Table I. Tandem Rotor C Blade Element Design

Velocity Diagram Data												
Equivalent Rotor Speed = 4210 rpm						Equivalent Weight Flow = 110 lb/sec						
Percent Span From Tip												
	Leading Edge	Trailing Edge	V'_{le} (ft/sec)	V_{zle} (ft/sec)	$V'_{\theta le}$ (ft/sec)	β'_{le} (deg)	U_{le} (ft/sec)	V'_{te} (ft/sec)	V_{zte} (ft/sec)	$V'_{\theta te}$ (ft/sec)	β'_{te} (deg)	U_{te} (ft/sec)
Hub	96.5	95.0	778.0	484.5	608.8	51.49	608.8	483.8	463.4	138.9	16.69	610.5
	91.5	90.0	784.0	484.4	616.5	51.84	616.5	492.2	467.0	155.5	18.42	617.6
	86.4	85.0	790.1	484.3	624.2	52.19	624.2	500.2	469.8	171.6	20.07	624.7
	70.9	70.0	808.5	483.8	647.8	53.24	647.8	523.3	476.7	215.9	24.36	645.9
	50.0	50.0	833.5	482.6	679.6	54.62	679.6	548.2	480.2	264.3	28.83	674.2
	29.1	30.0	858.7	480.8	711.5	55.95	711.5	562.1	474.0	302.2	32.53	702.6
	13.6	15.0	877.4	479.0	735.1	56.91	735.1	566.1	463.1	325.6	35.11	723.8
	8.5	10.0	883.5	478.4	742.8	57.22	742.8	566.0	458.6	331.8	35.88	730.9
Tip	3.5	5.0	889.6	477.7	750.5	57.52	750.5	565.0	453.8	336.6	36.56	738.0
Design Performance Data												
Rotor Pressure Ratio: 1.3188						Adiabatic Efficiency: 90.8%						
Percent Span From Tip												
	Leading Edge	Trailing Edge	M'_{le}	i_m (deg)	D	$\bar{\omega}$	Loss Parameter	δ° (deg)	P_{te} (psf)	T_{te} (°R)		
Hub	96.5	95.0	0.7102	-0.354	0.5533	0.11341	0.03154	8.937	2789.1	566.63		
	91.5	90.0	0.7152	-0.439	0.5447	0.10314	0.02876	9.121	2789.2	566.20		
	86.4	85.0	0.7212	-0.499	0.5370	0.09446	0.02637	9.149	2788.7	565.81		
	70.9	70.0	0.7380	-0.813	0.5171	0.07363	0.02067	8.665	2788.9	565.94		
	50.0	50.0	0.7608	-1.430	0.5028	0.06131	0.01732	8.164	2792.9	564.71		
	29.1	30.0	0.7836	-2.078	0.5057	0.07348	0.02085	7.709	2792.8	565.53		
	13.6	15.0	0.8005	-2.485	0.5167	0.09534	0.02713	7.635	2788.8	566.69		
	8.5	10.0	0.8061	-2.606	0.5224	0.10505	0.02988	7.831	2788.2	567.28		
Tip	3.5	5.0	0.8116	-3.076	0.5296	0.11647	0.03318	7.778	2788.3	568.04		
Geometry Data												
Airfoils: Circular Arc				No. of Blades: 70				Chord Lengths: 1.37 inches				
Percent Span From Tip												
Front Body Leading Edge	Rear Body Trailing Edge	Front Airfoil				Rear Airfoil				Each Airfoil		
		K'_{le} (deg)	K'_{te} (deg)	ϕ (deg)	δ° (deg)	K'_{le} (deg)	K'_{te} (deg)	ϕ (deg)	γ° (deg)	σ	t/c	
Hub	96.5	95.0	51.75	36.65	15.10	44.25	42.75	7.75	35.00	25.15	0.920	0.0783
	91.5	90.0	52.19	37.59	14.60	44.85	43.10	9.10	34.00	26.05	0.909	0.0763
	86.4	85.0	52.60	38.40	14.20	45.47	43.50	10.70	32.80	27.08	0.899	0.0743
	70.9	70.0	54.04	41.04	13.00	47.60	45.00	15.45	29.55	30.25	0.868	0.0682
	50.0	50.0	56.10	44.10	12.00	50.10	46.67	20.67	26.00	33.67	0.829	0.0600
	29.1	30.0	58.09	46.18	11.91	52.05	48.95	25.00	23.95	37.00	0.791	0.0518
	13.6	15.0	59.60	47.20	12.40	53.68	51.65	27.50	24.15	40.05	0.767	0.0457
	8.5	10.0	60.18	47.46	12.72	54.10	52.63	28.05	24.58	41.10	0.760	0.0437
Tip	3.5	5.0	60.75	47.72	13.03	54.45	53.78	28.78	25.00	42.05	0.751	0.0417

Table II. Tandem Stator B Blade Element Design

Velocity Diagram Data										
Equivalent Rotor Speed = 4210 rpm						Equivalent Weight Flow = 110 lb/sec				
Percent Span From Tip										
	Leading Edge	Trailing Edge	V_{lc} (ft/sec)	V_{zle} (ft/sec)	$V_{\theta le}$ (ft/sec)	β_{le} (deg)	V_{te} (ft/sec)	V_{zte} (ft/sec)	$V_{\theta te}$ (ft/sec)	β_{te} (deg)
Hub	95.0	95.0	667.2	471.9	471.7	44.99	480.0	480.0	0.0	0.0
	90.0	90.1	663.0	475.4	462.2	44.20	481.9	481.9	0.0	0.0
	85.0	85.2	658.9	478.2	453.3	43.47	483.6	483.6	0.0	0.0
	70.0	70.1	648.6	485.1	430.5	41.58	488.8	488.8	0.0	0.0
	50.0	50.0	638.6	489.2	410.5	40.00	494.4	494.4	0.0	0.0
	30.0	29.8	628.6	483.9	401.1	39.66	494.7	494.6	0.0	0.0
	16.0	14.8	619.8	474.1	399.2	40.09	492.2	492.0	0.0	0.0
	10.0	9.9	617.4	470.1	400.2	40.40	491.4	491.2	0.0	0.0
Tip	5.0	4.9	615.6	465.8	402.5	40.84	491.2	491.0	0.0	0.0

Design Performance Data									
Stage Pressure Ratio: 1.2982						Adiabatic Efficiency: 85.4%			
Percent Span From Tip									
	Leading Edge	Trailing Edge	M'_{le}	i_m (deg)	D	$\bar{\omega}$	Loss Parameter	δ° (deg)	P_{te} (psf)
Hub	95.0	95.0	0.5915	-1.982	0.5183	0.09619	0.03242	13.031	2732.5
	90.0	90.1	0.5878	-2.003	0.5106	0.09171	0.03125	12.854	2735.8
	85.0	85.2	0.5840	-2.001	0.5035	0.08721	0.03004	12.734	2738.5
	70.0	70.1	0.5747	-2.086	0.4840	0.07636	0.02717	12.334	2746.1
	50.0	50.0	0.5655	-2.228	0.4672	0.07100	0.02634	12.120	2754.1
	30.0	29.8	0.5556	-2.697	0.4649	0.07570	0.02926	12.708	2752.7
	15.0	14.8	0.5468	-3.211	0.4695	0.08253	0.03276	13.510	2746.4
	10.0	9.9	0.5442	-3.450	0.4722	0.08632	0.03457	13.808	2744.2
Tip	5.0	4.9	0.5422	-3.619	0.4755	0.08920	0.03603	14.152	2743.2

Geometry Data												
Airfoils: Circular Arc				No. of Vanes: 66		Chord Lengths: 1.30 inches						
Percent Span From Tip												
Front Body Leading Edge	Rear Body Trailing Edge	Front Airfoil				Rear Airfoil				Each Airfoil		
		K_{le} (deg)	K_{te} (deg)	ϕ (deg)	γ° (deg)	K_{le} (deg)	K_{te} (deg)	ϕ (deg)	γ° (deg)	σ	t/c	
Hub	95.0	95.0	46.97	34.97	12.00	40.97	39.37	-13.03	53.00	13.22	0.822	0.09
	90.0	90.1	46.19	34.64	11.55	40.45	39.50	-12.85	52.35	13.00	0.813	0.09
	85.0	85.2	45.51	34.27	11.24	39.95	39.10	-12.55	51.65	13.00	0.804	0.09
	70.0	70.1	43.77	33.27	10.50	38.55	38.40	-12.10	50.50	13.00	0.778	0.09
	50.0	50.0	42.23	32.23	10.00	37.23	37.88	-12.12	50.00	12.88	0.747	0.09
	30.0	29.8	42.35	31.90	10.45	37.00	37.60	-12.60	50.20	12.50	0.718	0.09
	15.0	14.8	43.40	32.20	11.20	37.70	38.00	-13.50	51.50	12.05	0.698	0.09
	10.0	9.9	43.90	32.35	11.55	38.05	38.15	-13.90	52.05	12.05	0.692	0.09
Tip	5.0	4.9	44.45	32.45	12.00	38.50	38.90	-14.10	53.00	12.40	0.685	0.09

installed across a vane gap to measure the static pressure variation across the gap. Ten static pressure taps were located over the rotor blade tips on the outer wall, between -10% and 101% tandem rotor axial chord, to measure the rotor tip static pressures. Midspan stator surface static pressure distributions were measured with eight pressure taps located from approximately 15% to 85% chord on each surface of the front and rear airfoils. The eight pressure taps on each surface were installed on the same airfoil and a different stator vane was used for each group of eight pressure taps (i.e., a total of four stators). The four stators were positioned in the stator assembly such that at least one uninstrumented vane separated those with static taps. The circumferential location of each instrumented airfoil and the location of the pressure taps in terms of percent over-all chord are shown in figure 6.

Twenty-degree wedge probes were used to measure the radial distributions of total pressure and flow angle at the rotor inlet and exit, and flow angle at the stator exit (figure 7). Stator exit total pressure and temperature across a stator gap were measured at each of two circumferential locations by means of circumferentially traversed radial rakes with elements at nine radial locations (figure 8). The elements of each radial rake were designed to measure both total pressure and temperature. A fixed radial rake with five Kiel-type total pressure sensors was also installed downstream of the stator for use with the wall static pressure measurements to calculate the freestream Mach number. This Mach number was used to correct the total temperature and the 8-degree wedge static pressure measurements.

Steady-state pressure data were measured with a multichannel pressure transducer scanning system that includes automatic data recording on computer cards. Steady-state temperature measurements were also automatically recorded on computer cards by a multichannel scanning system in conjunction with a temperature reference oven and a digital voltmeter. Traverse pressure and temperature data and transient pressure data were recorded on magnetic tape at up to 600 samples per minute per channel.

Two static pressure taps located in the plenum, two of the outer wall static pressure taps at Station 0, and a total pressure probe with sensors at 10, 50, and 90% spans at the rotor exit were close-coupled to transducers for transient recording during operation into and out of stall. High-response pressure transducers mounted as total pressure probes at 10, 50, and 90% span from the tip behind the rotor (figure 9) were used to measure high-frequency total pressure oscillations and to indicate the initiation of rotating stall. The high-response transducer output was recorded on magnetic tape and correlated in time with the transient recording of the Station 0 static pressures and the stage exit total pressures.

Five rotor blades were instrumented with strain gages to provide vibratory stress data. The gage outputs were displayed on oscilloscopes and visually monitored during tests. Gage locations were determined by bench vibration tests with the aid of stress-coat and the selected locations were verified by a fatigue test.

PROCEDURES

Test Procedures

Shakedown Tests

A shakedown test was conducted to check out the rig and blade vibration levels, blade stress levels, instrumentation, and data reduction programs. Overall and blade element performance data were obtained for three operating points at 100% design equivalent rotor speed.

Performance Tests

Overall and blade element performance data and stall transient data were obtained at 50, 70, 90, 100, and 110% of design equivalent rotor speed. Six data points were recorded at each speed to define stage performance between maximum obtainable flow and near stall. At each test point, traverse surveys were followed by the recording of fixed pressure and temperature instrumentation data with the traverse probes withdrawn. Blade stresses were monitored during steady-state and stall transient operation at all rotor speeds.

Transient measurements of bellmouth static pressure, rotor speed, and rotor exit total pressure were recorded ten times per second to define stall characteristics as the stage was operated into and out of stall. The output from a high response total pressure probe (10, 50, and 90 percent spans) at the rotor exit was also recorded as the stage was operated into and out of stall and correlated in time with the other transient measurements.

Data Reduction Procedures

Data reduction was accomplished in two steps. The first step involved the use of two computer programs to (1) convert millivolt readings to appropriate engineering units, and (2) provide a tabulated and plotted array of pressures, temperature, and air angle data at each station. Conversion of data to absolute values, appropriate Mach number corrections, and adjustment of pressures and temperature to equivalent NASA standard day conditions were performed in the second computer program.

The second step in the data reduction procedure involved a computer program to calculate overall and blade element performance variables for the rotor and stator. The array of data provided in step one above was analyzed for the selection of radial distributions of pressures, temperature, and air angle at each axial station for input into the computer program.

Overall Performance

Total pressure ratios and adiabatic efficiencies were calculated for the rotor and the rotor-stator (stage). The rotor and stator exit total pressures and total temperatures were weighted according to local mass flow to obtain average values. The mass-averaged stator exit total temperatures were used for both the rotor and stage efficiency calculations.

The stator wake total pressures and total temperatures at each radial measuring station were mass averaged using the local total pressure in the wake, the local total temperature in the wake, and the 8-degree wedge probe static pressure. Mach number was determined from the local total and static pressure measurements. The local mass flow was then obtained from the relationship

$$\bar{m} = \frac{W\sqrt{T}}{PA} = \sqrt{\frac{\gamma g_c}{R}} M \left[1 + \frac{\gamma-1}{2} M^2 \right]^{\frac{1+\gamma}{2(1-\gamma)}}$$

where A is the flow area associated with each radial measurement increment.

Blade Element Performance

Performance and velocity diagram calculations were performed for each blade row along design streamlines that pass through 5, 10, 15, 30, 50, 70, 85, 90, and 95% span at instrumentation Station 2. The calculations were performed at the instrumentation stations and at the rotor and stator leading and trailing edges. The pressures, temperatures, and air angles at the blade row leading and trailing edges were obtained by translating the measured values from the instrumentation stations, assuming conservation of angular momentum, conservation of energy, continuity, and that the actual streamlines do not deviate substantially from design streamlines for any test point. A description of the translation method is presented in Reference 4.

Stall Transient Data

Bellmouth static pressure at incipient stall was determined from plots similar to the one shown in figure 10, and the corresponding weight flow was determined from the correlation of bellmouth static pressure and orifice weight flow shown in figure 11. The steady-state pressure ratio data were extrapolated to the stall flow using the shape of the transient data curve as a guide line. Incipient stall points were determined in this manner for each rotor speed.

PRESENTATION OF DATA

Overall Performance

Overall performance data are presented in terms of pressure ratio and adiabatic efficiency as functions of equivalent weight flow ($W\sqrt{\theta}/\delta$) and equivalent rotor speed ($N/\sqrt{\theta}$) for the rotor in figure 12 and the rotor-stator (stage) in figure 13. The design pressure ratio and efficiency for the rotor were 1.32 and 90.8%, respectively, at a design flow of 110.0 lb/sec. The corresponding design values for the stage were 1.30 and 85.4%. The design point is shown on each figure for comparison with the performance results. The solid symbol on the stall line in figures 12 and 13 is the stall point determined from the transient data. Pressure ratio, adiabatic efficiency, and polytropic efficiency for the rotor and stage are also tabulated for the steady-state data points in table A-1 of Appendix A.

Based on a curve faired through the data points, the rotor achieved an adiabatic efficiency of 92% and a total pressure ratio of 1.31 at design equivalent rotor speed and flow. At the same flow and rotor speed the stage achieved an adiabatic efficiency of 86% and a total pressure ratio of 1.29. The peak efficiency for both the rotor and stage were reached at approximately design equivalent flow.

Blade Element Performance

As discussed on page 9, the blade element performance and velocity diagram calculations were performed at the instrumentation stations and at the rotor and stator leading and trailing edges. Results of these calculations are tabulated in tables A-2 and A-3 of Appendix A for each of the nine design streamline locations. Table A-2 is presented to illustrate the small differences at the near-design point between values calculated from the data at the instrumentation stations and the values calculated from the data that have been translated to the rotor and stator leading and trailing edges. Due to the small differences between translated and untranslated values, only the translated values are given in table A-3 for the remaining compressor test points. The plotted results discussed for the rotor and stator in the following paragraphs are based on the translated data.

Rotor

Rotor diffusion factor, deviation angle, and loss coefficient are shown as functions of incidence angle in figures 14a through 14i. At the design incidence angle and rotor speed, total pressure losses and deviation angles are less than or equal to the design values from 15% to 70% span from the tip and greater than the design values at 5, 10, and 85 to 95% span. The diffusion factor at design incidence angle and rotor speed is appreciably less than the design value at 5% span from the tip and approximately equal to the design value for all other spanwise positions.

Loss parameter vs diffusion factor is presented in figures 15a through 15c for 10, 50, and 90% span, respectively. The design curve representing a correlation of the minimum loss data from References 6 through 12 is shown in each figure. The design point is also included in these figures for comparison with the performance data. Although the data from References 6 through 12 are for Series 65 blade sections, the data presented in Reference 13 indicates that a single correlation of loss parameter vs diffusion factor can be used for Series 65 and double circular-arc blade sections. The range of data in the Reference 13 correlation and the two-dimensional cascade data from figure 149 of Reference 13 are also shown in figures 15a through 15c for comparison with the selected design loss curves. At design equivalent rotor speed, the loss parameter values that correspond to the minimum loss coefficient at 10% and 90% span (figures 14b and 14h, respectively) are above the design curve, with the larger difference occurring at the hub. For similar conditions at 50% span, the loss parameter value is slightly below the design curve.

Axial gradients of rotor tip static pressure ratio [$p_L/(p \text{ at } -10\% \text{ axial chord})$] are shown in figures 16a through 16f. In the order of decreasing flowrate at design equivalent rotor speed, these figures indicate that the rotor tip loading shifted toward the leading edge of the front body as the compressor was throttled toward stall flow.

Stator

Stator diffusion factor, deviation angle, and loss coefficient are presented as functions of incidence angle in figures 17a through 17i. At design incidence angle, stator losses at 5, 10, and 85 to 95% span from the tip are greater than the design values, while from 15% to 70% span from the tip the stator losses are less than the design values. Deviation angles, at design incidence angle, are greater than design values across the entire span of the vane; and, with the exception of 70% span where the diffusion factor is approximately equal to the design value, the diffusion factors are less than predicted.

Loss parameter vs diffusion factor is shown in figures 18a through 18c for 10, 50, and 90% span, respectively. The design curve representing a correlation of the minimum loss data from Reference 6 through 12 is shown on each figure. The design point, the range of stator data from Reference 13, and the two-dimensional cascade data from Reference 13 are included in the figures for comparison with the Stator B performance data. At design equivalent rotor speed, the loss parameter value corresponding to the minimum loss coefficient at 10% span from the tip is approximately on the design curve; at 50% span, the loss parameter value is lower than the design curve; and at 90% span, the loss parameter value is above the design curve.

The midspan stator static pressure coefficient distributions, at design equivalent rotor speed, are shown in figures 19a through 19f. Static pressure coefficient distributions for all data points are tabulated in Appendix B. The rear airfoil loading, represented by the area between the suction surface and the pressure surface static pressure coefficients, decreased, while the front airfoil loading increased, as the compressor was throttled toward stall flow. The ability of the tandem-airfoil configuration to control the stator rear-airfoil incidence is suggested by the variations in the shape of the static pressure coefficient distribution for each airfoil. Operating between the maximum and minimum flowrates at design equivalent rotor speed, the stator front-airfoil experienced large variations in the shape of its static pressure coefficient distribution, while the shape of the corresponding distribution for the rear airfoil remained nearly constant.

The wall static pressure data, shown for design equivalent rotor speed in figures 20a through 20f, were examined to determine if circumferential gradients with respect to the stator vanes were significant. In general, the variations of static pressure at different circumferential locations (solid symbols in figure 20), but at approximately the same location relative to the stator vane, are as large as any variations that may be noted within one stator vane pitch. It was, therefore, concluded that no significant pitch-wise variation was present in these data.

SUMMARY REMARKS

Stage C was designed and tested to establish performance data for comparison with the results of previous tests of highly loaded, single-airfoil blading with identical design velocity diagrams. Based on a curve faired through the data points, the rotor achieved an adiabatic efficiency of 92% and a total pressure ratio of 1.31 at design equivalent rotor speed and flow. At the same flow and rotor speed, the stage achieved an adiabatic efficiency of 86% and a total pressure ratio of 1.29. The peak efficiencies for both the rotor and stage were reached at approximately design equivalent flow.

Figure 1. Compressor Research Facility

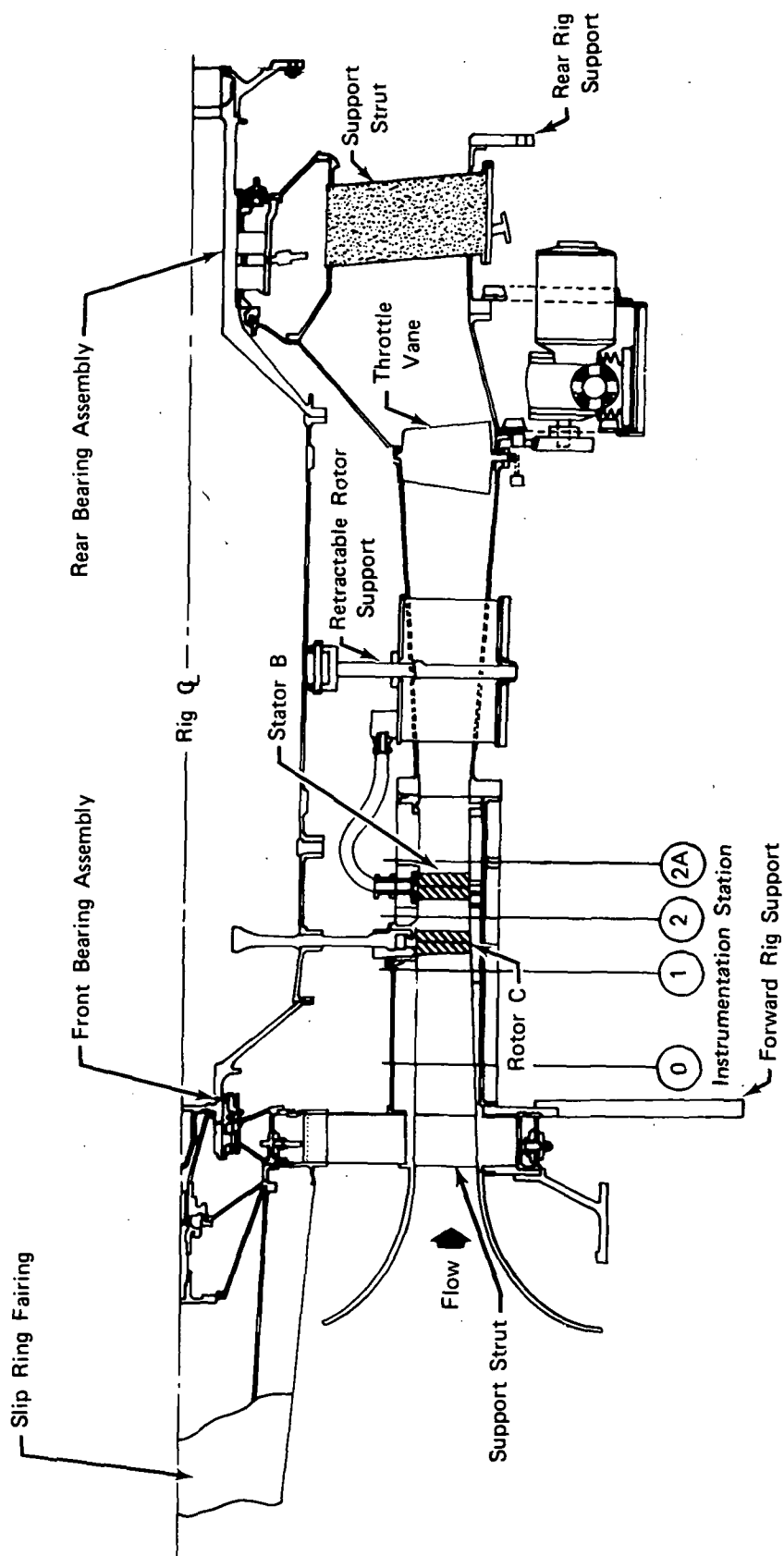
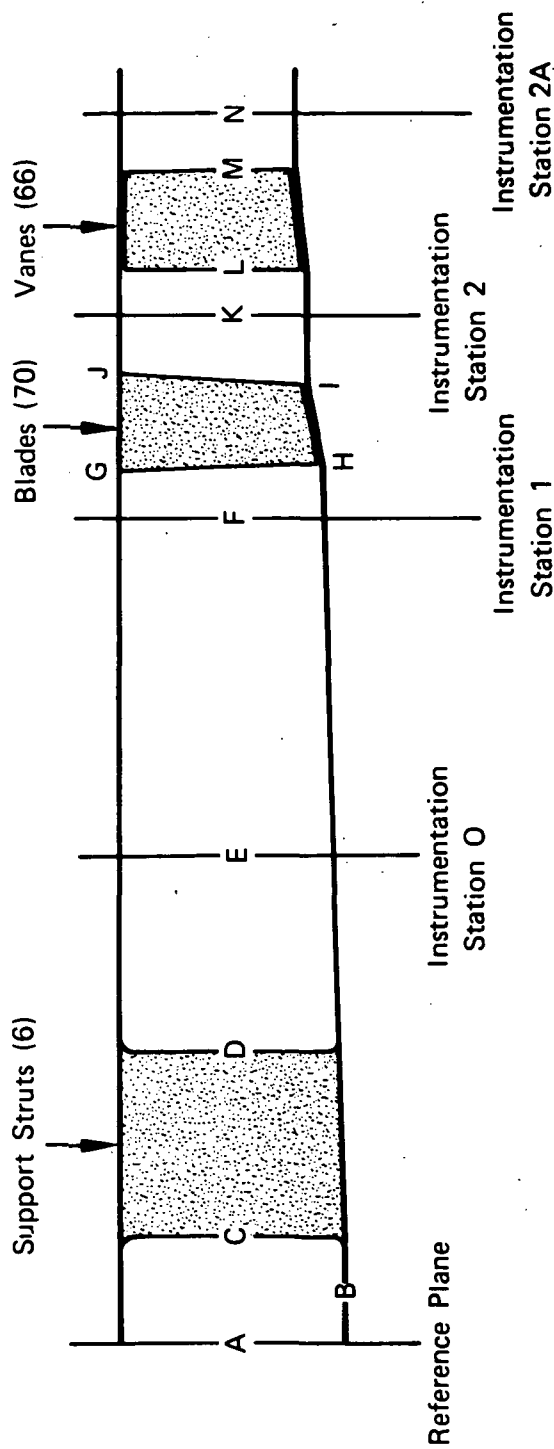


Figure 2. Single-Stage Compressor Rig

FD 47076C



Flow Path Location	Inner Diameter	Outer Diameter	Axial Distance From Reference Plane
A	32.850	41.790	0.0
B	32.850	41.790	2.010
C	32.850	41.744	2.440
D	32.850	41.444	6.265
E	32.850	41.340	10.248
F	32.850	41.226	17.188
G	32.850	—	18.196
H	—	41.145	18.423
I	—	40.562	20.223
J	32.850	—	20.450
K	32.850	40.520	21.368
L	32.850	40.450	22.163
M	32.850	39.990	24.468
N	32.850	39.990	25.418

Note: All Dimensions Are in Inches

Figure 3. Flowpath Dimensions

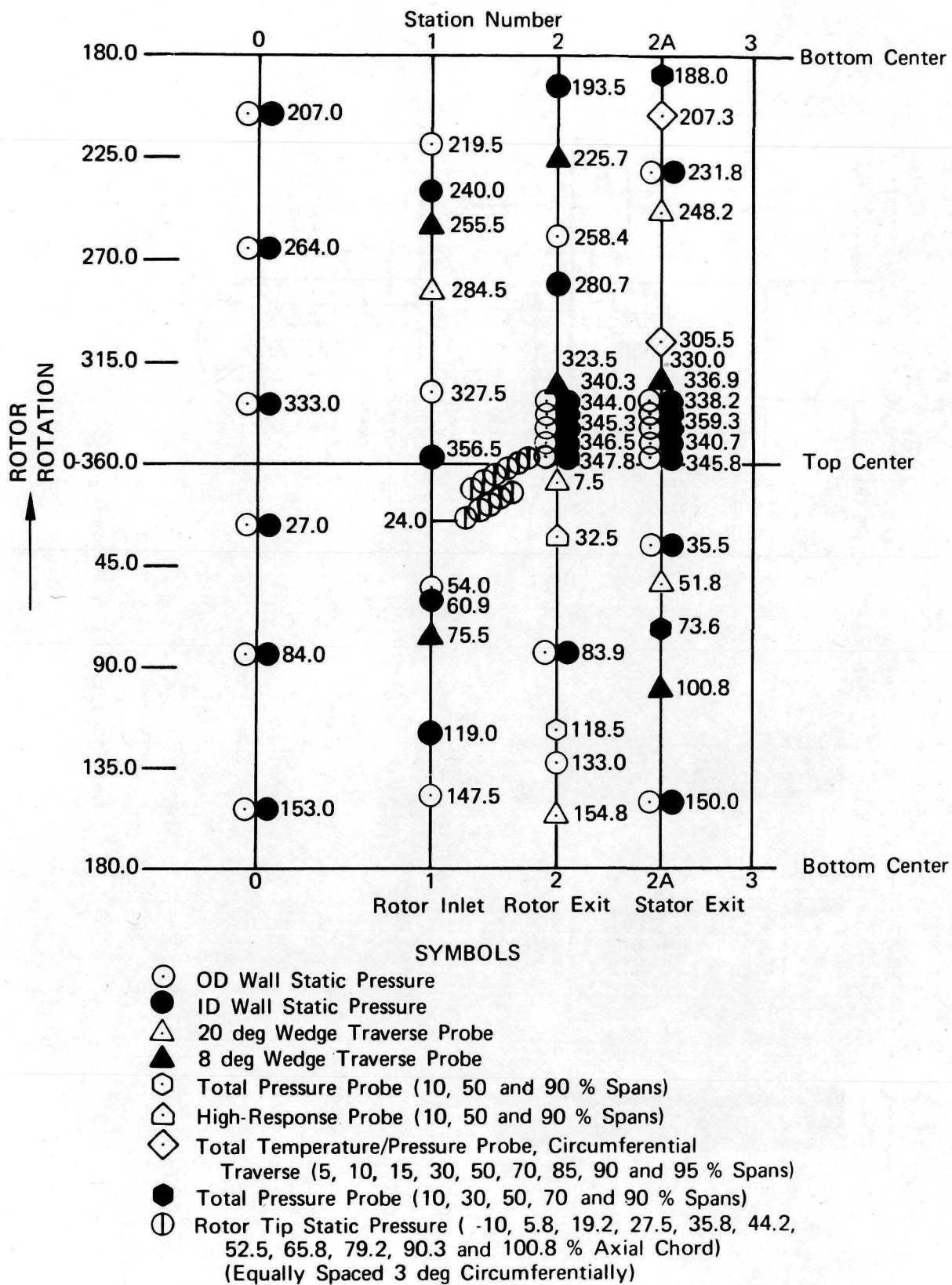
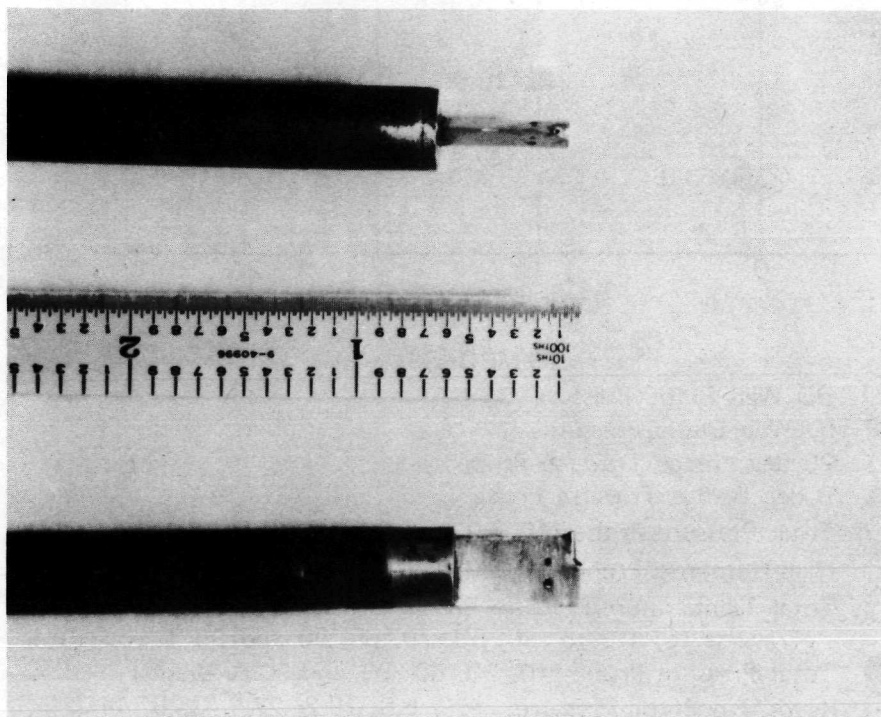
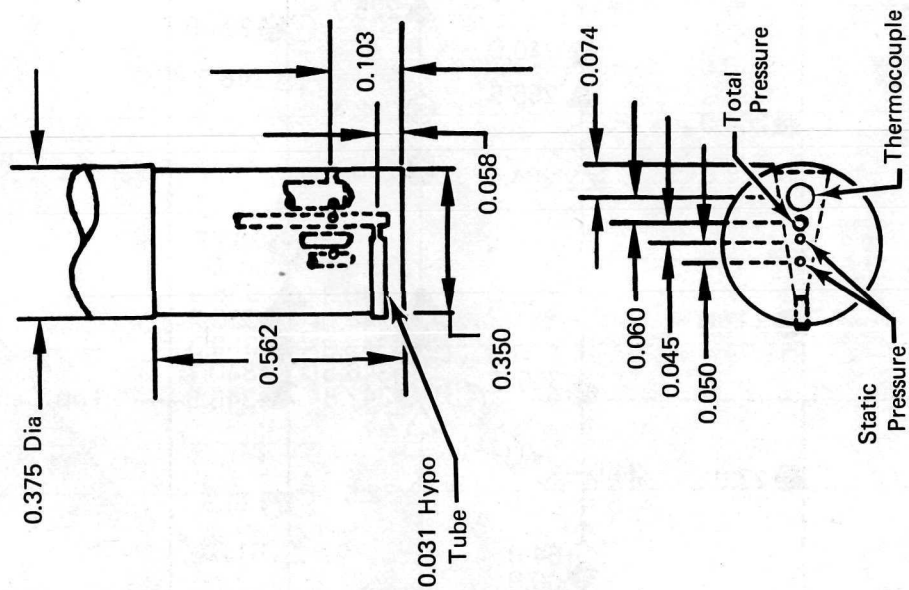


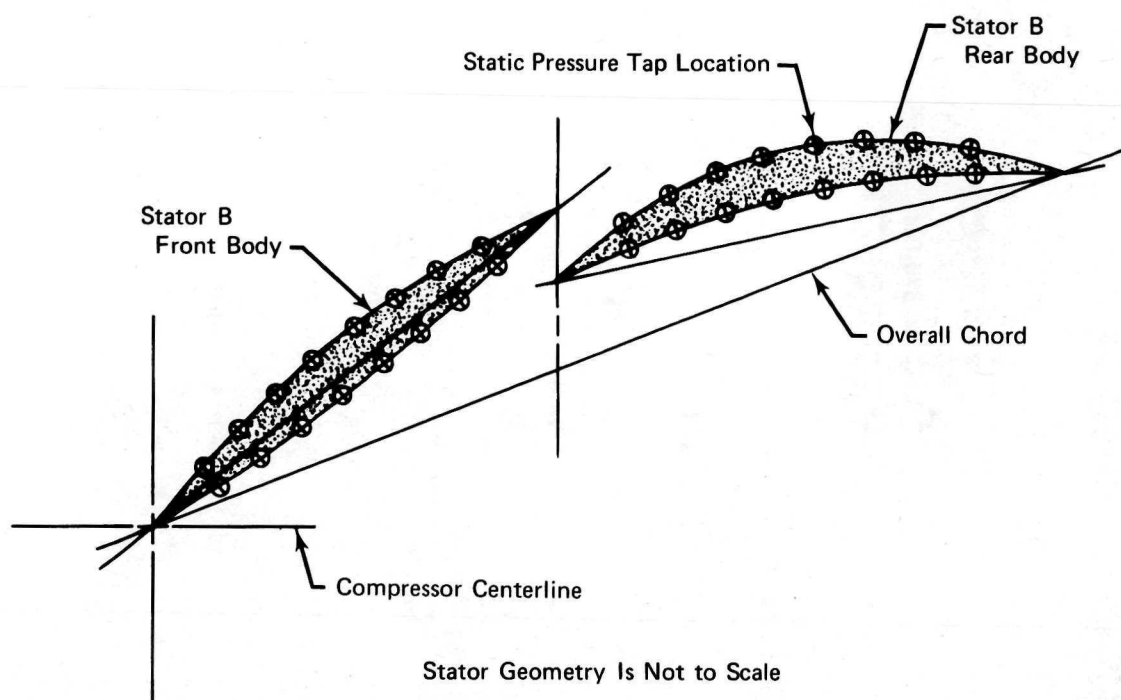
Figure 4. Instrumentation Layout

FD 58981A



Note: All dimensions are in inches

Figure 5. Twenty-Degree Wedge Traverse Probe



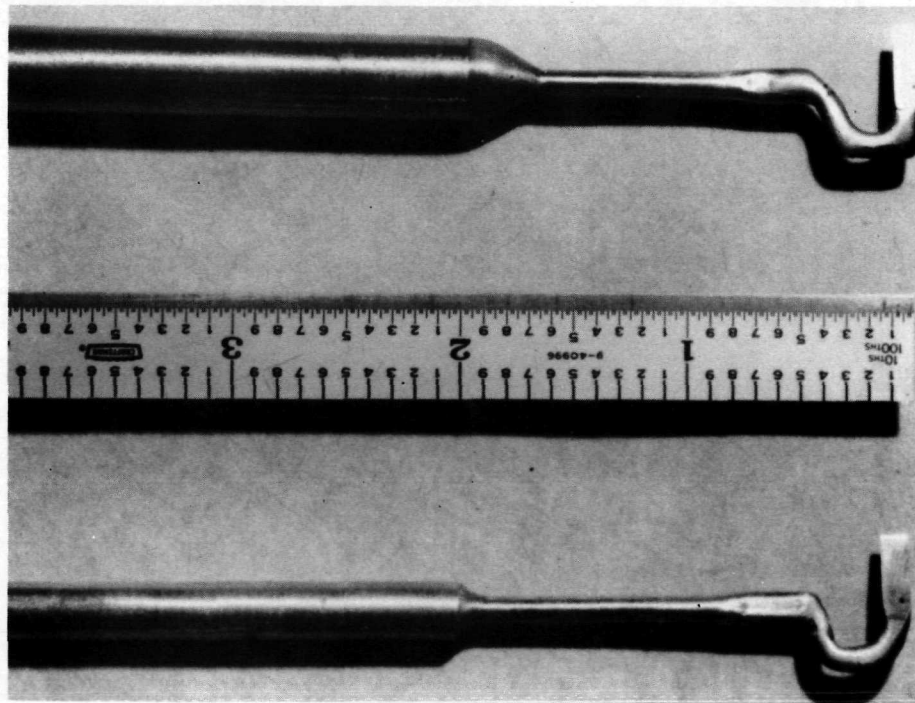
Percent Overall Chord Location

Front Body		Rear Body	
Suction Surface (21°41')	Pressure Surface (343°38')	Suction Surface (5°27')	Pressure Surface (354°33')
6.6	7.0	56.9	56.0
11.9	13.0	61.9	61.5
16.9	18.0	67.3	66.5
21.9	23.1	72.2	71.7
27.0	28.1	77.8	77.0
32.0	33.1	82.8	82.0
37.1	38.1	88.0	87.5
42.1	43.1	92.9	92.5

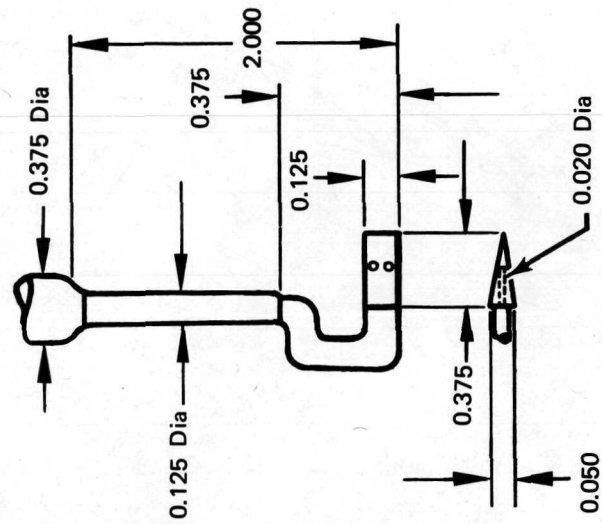
Note: Numbers in Parenthesis Indicate the Circumferential Position of the Instrumentated Airfoil in the Stator Assembly. Zero Degrees Is Top Center; the Angle Increases Clockwise Looking Aft.

Figure 6. Tandem Stator B Midspan Static Pressure Tap Locations

FD 62071



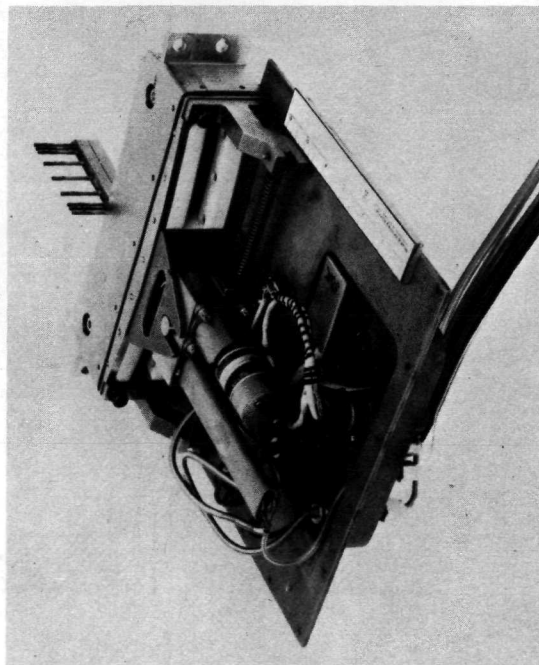
FD 47069



Note:
All dimensions are in inches.

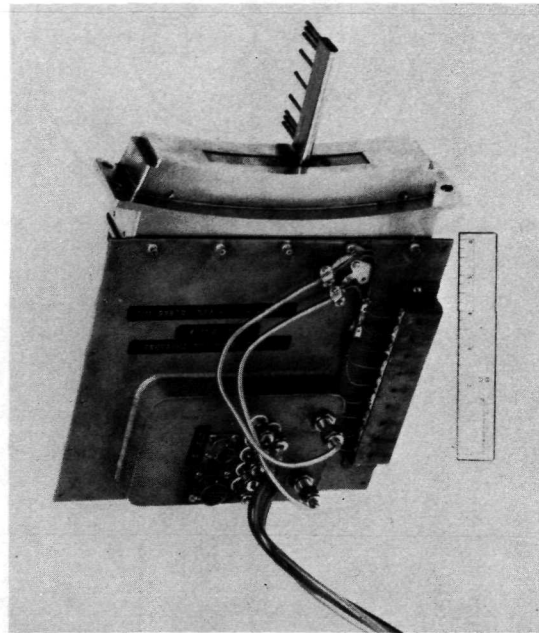
Figure 7. Eight-Degree Wedge Traverse Probe

FD 58983



FE 97405

Front View With Cover Removed

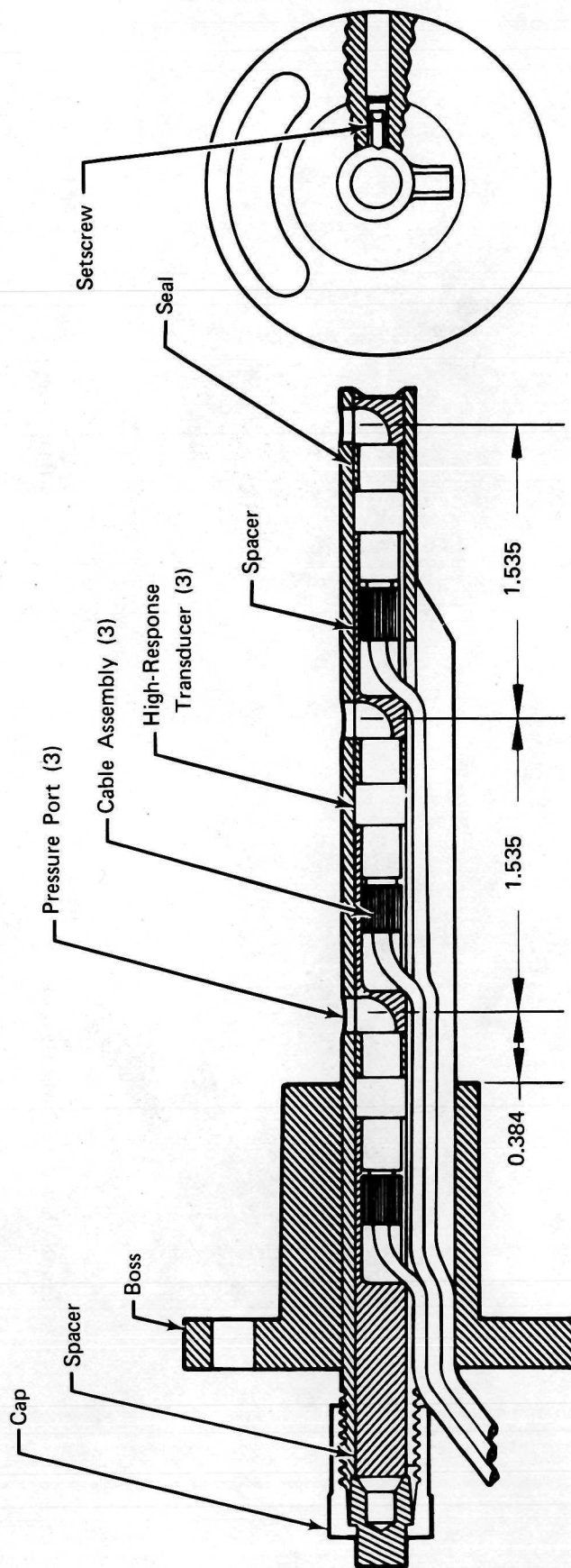


FE 97404

Rear View

Figure 8. Total Pressure/Total Temperature Circumferential Traverse Unit

FD 47068



Note: All Dimensions Are In Inches.

Figure 9. High-Response Probe

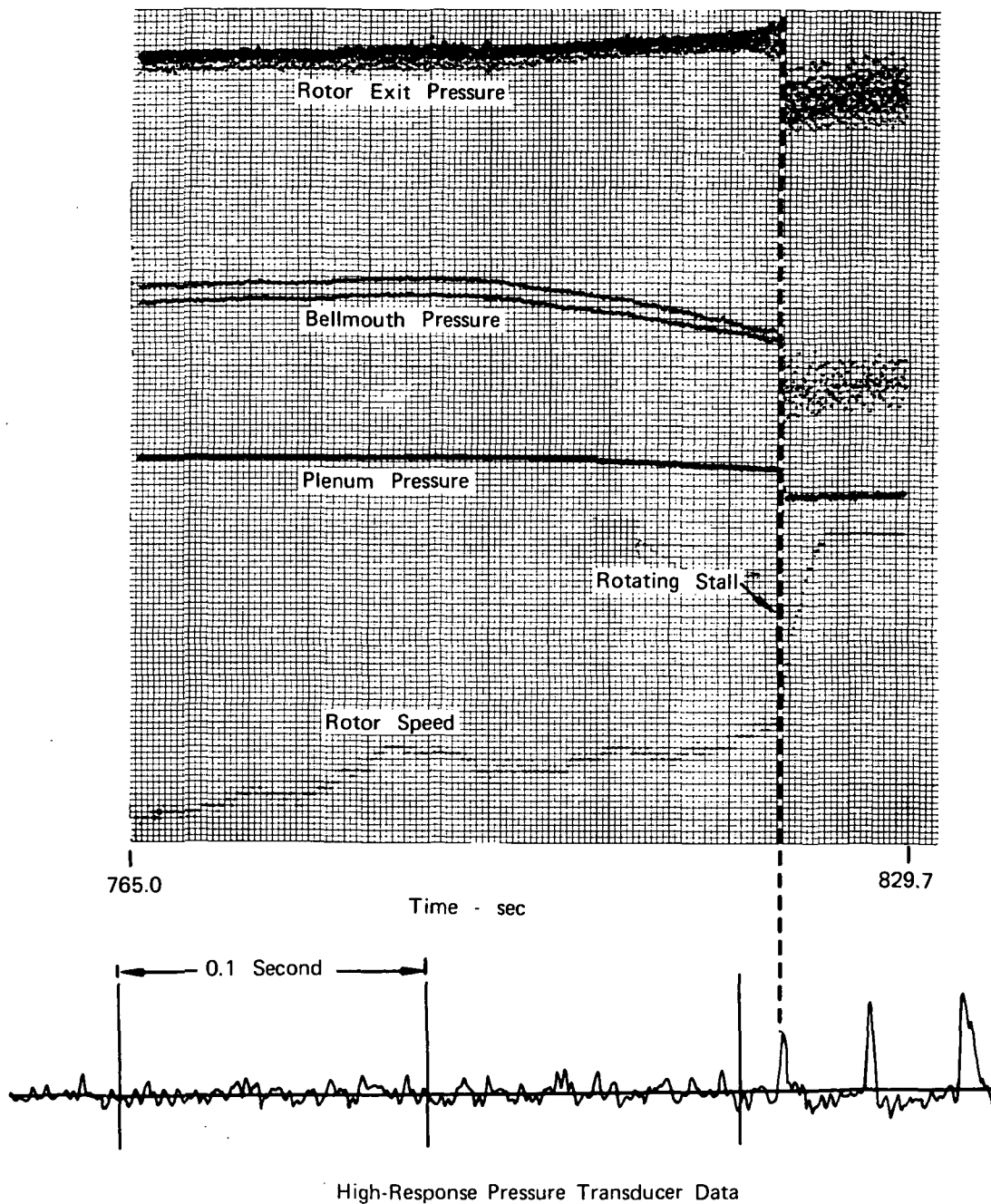


Figure 10. Typical Stall Transient Data

FD 34394B



Figure 11. Station 0 Equivalent Static Pressure vs Equivalent Weight Flow

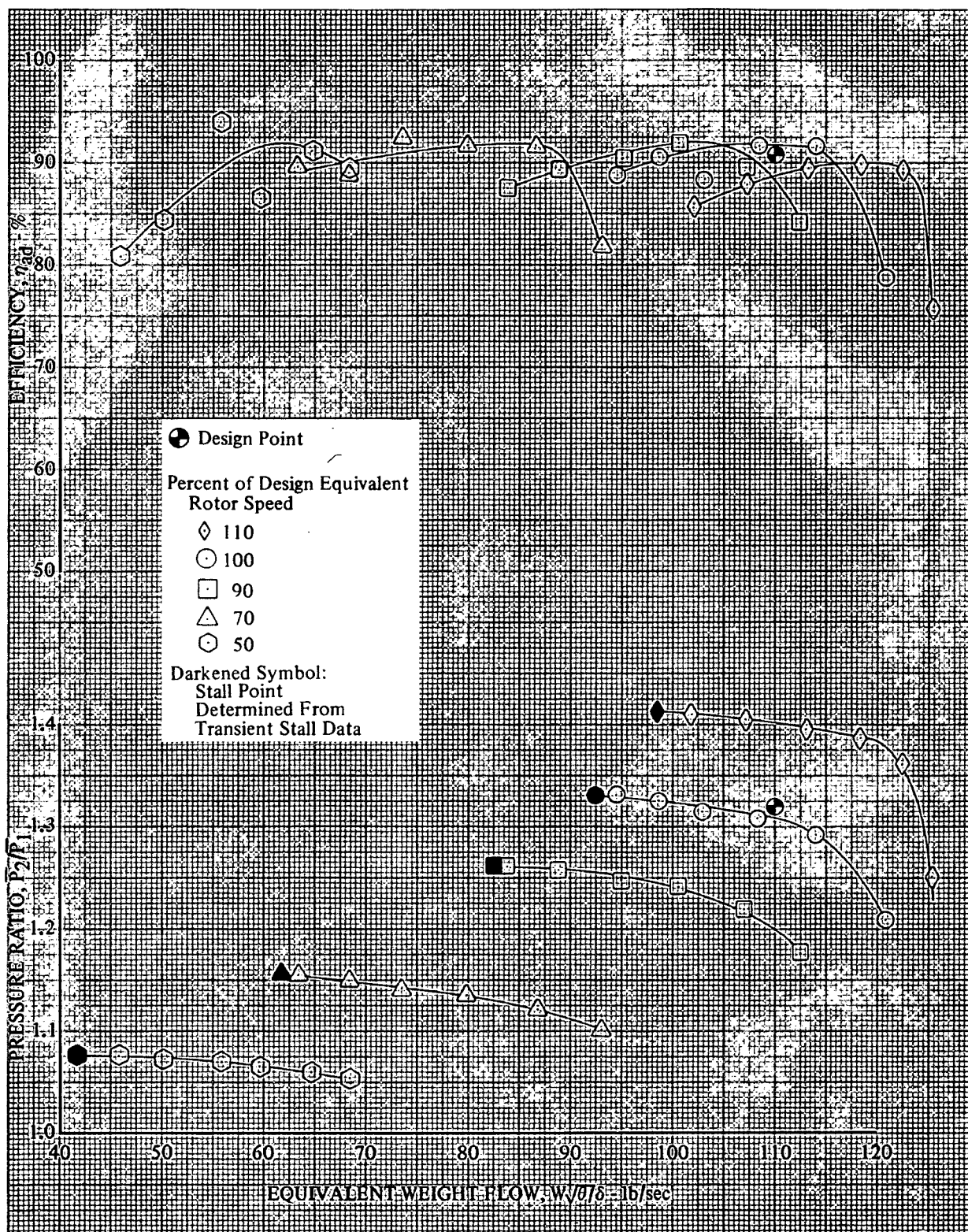


Figure 12. Overall Performance of Tandem Rotor C DF 91031

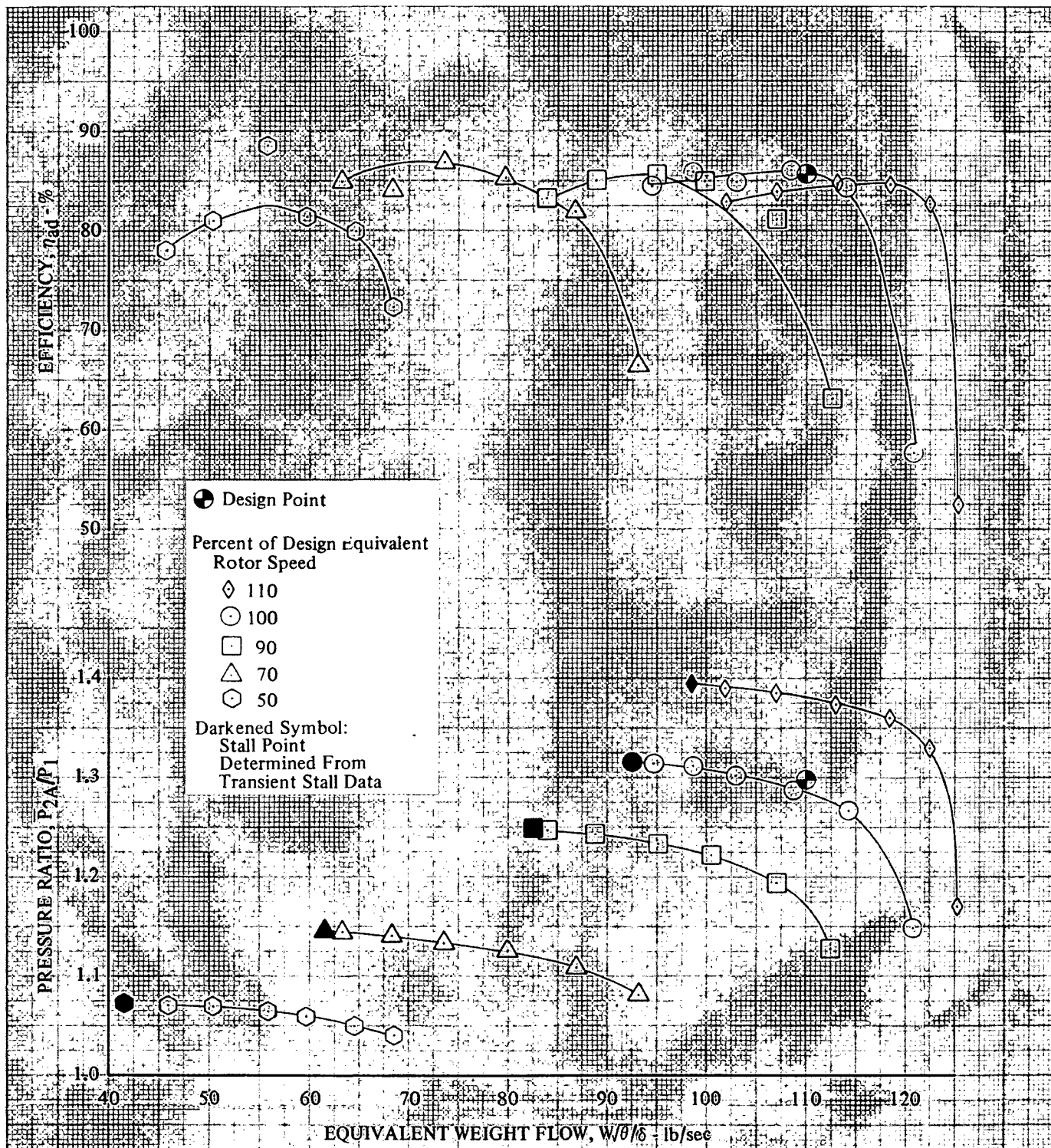


Figure 13. Overall Performance of Tandem Stage C DF 91032

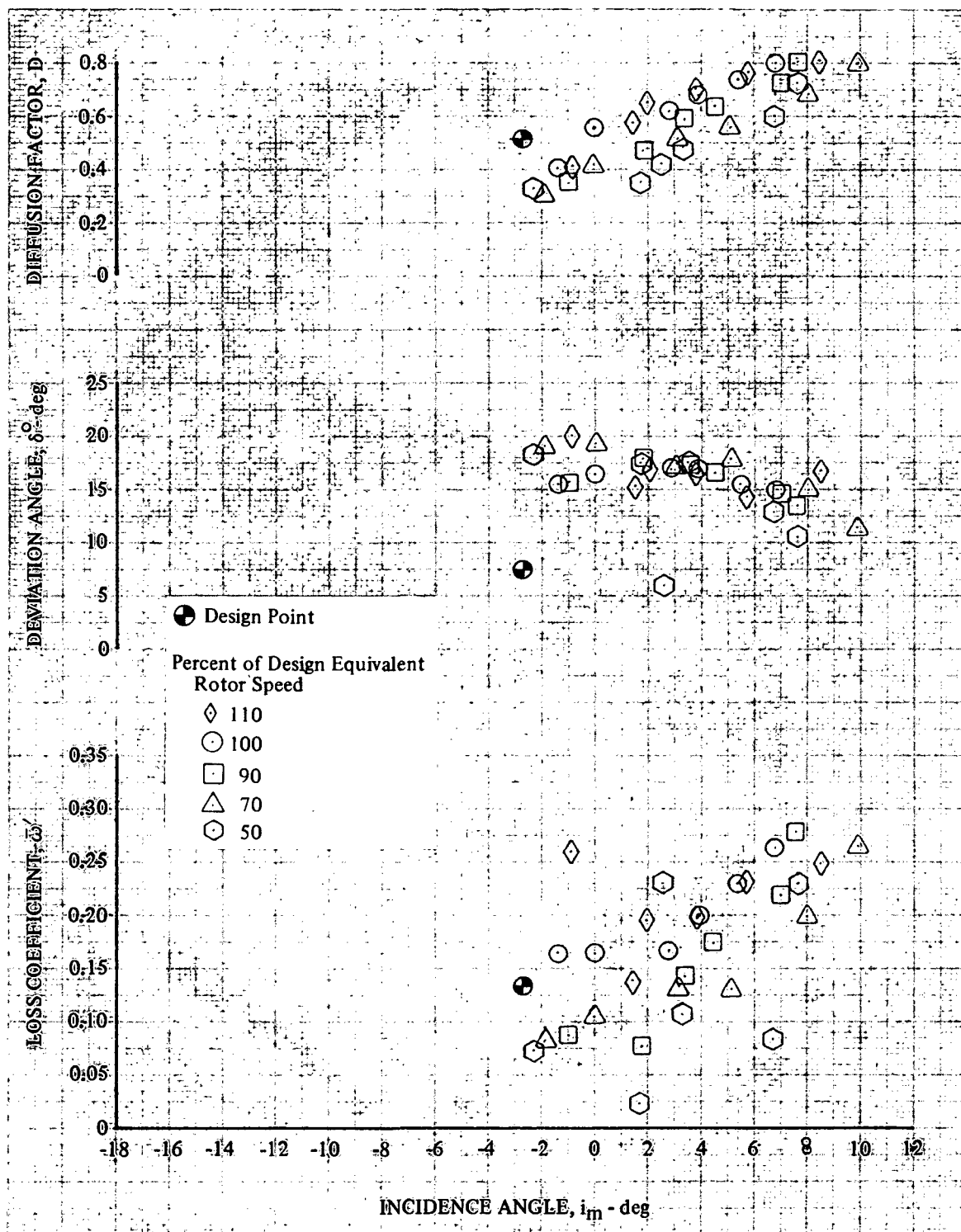


Figure 14a. Tandem Rotor C Blade Element Performance, 5% Span from Tip

DF 91033

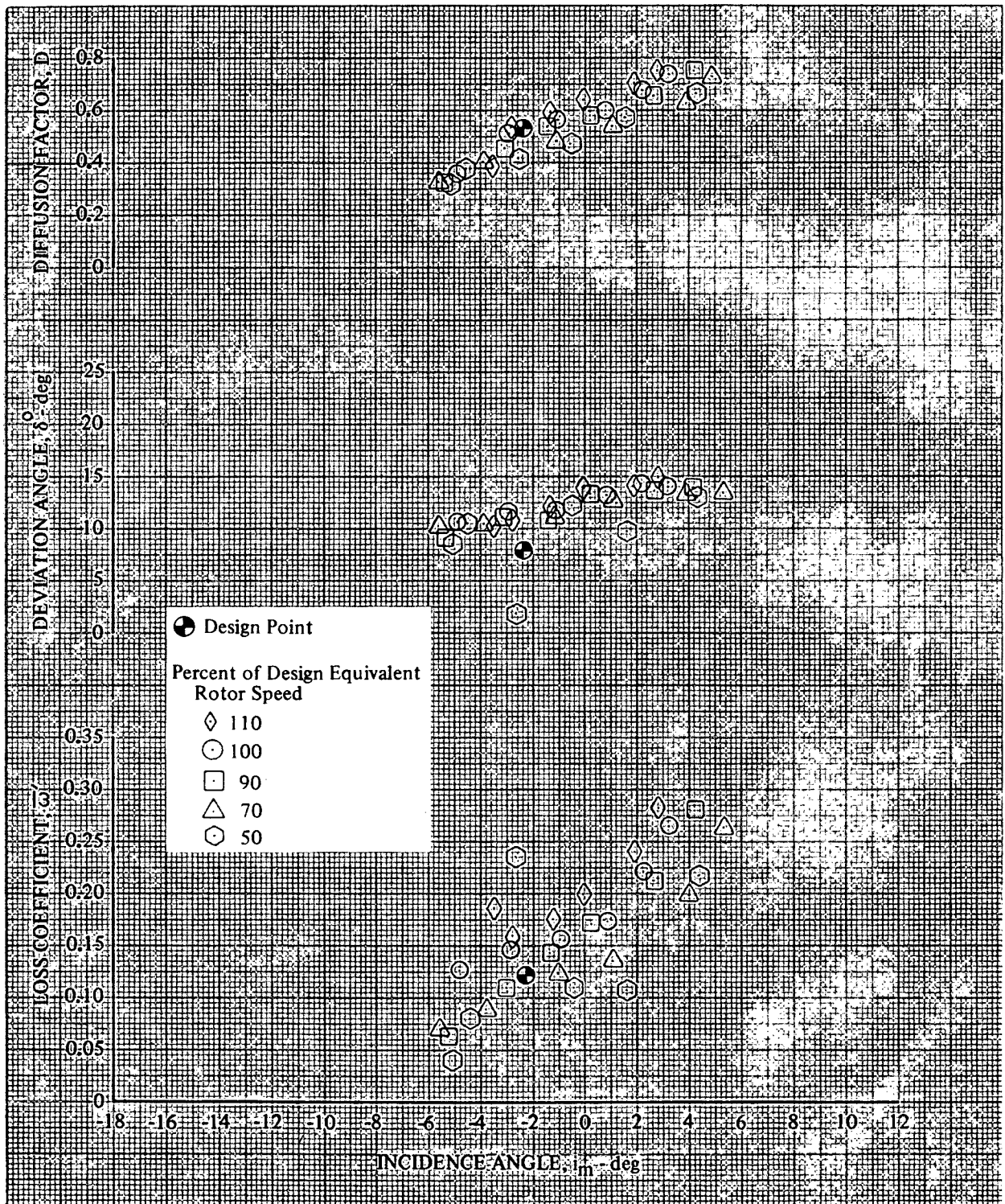


Figure 14b. Tandem Rotor C Blade Element Performance, 10% Span from Tip

DF 91034

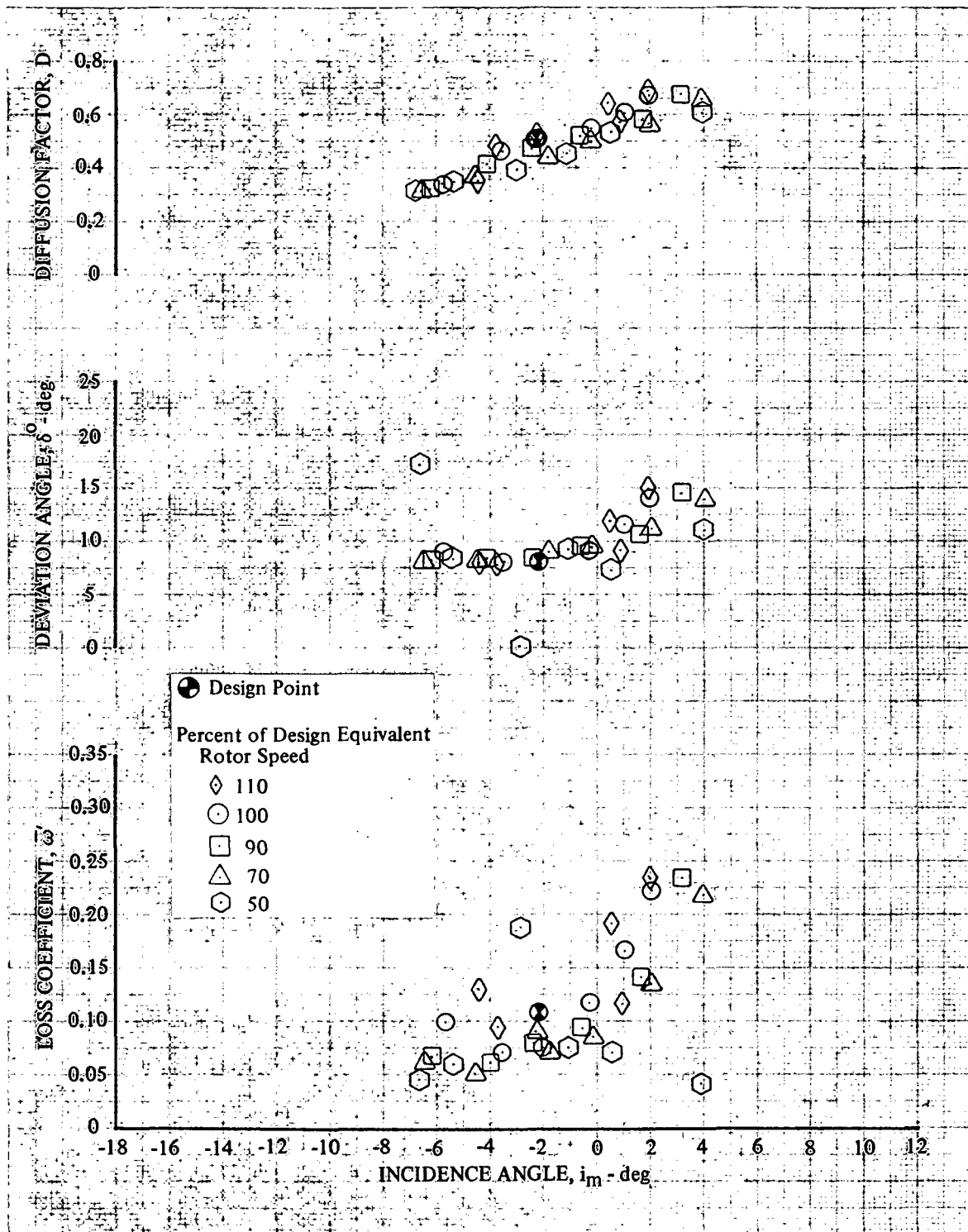


Figure 14c. Tandem Rotor C Blade Element Performance, 15% Span from Tip

DF 91035

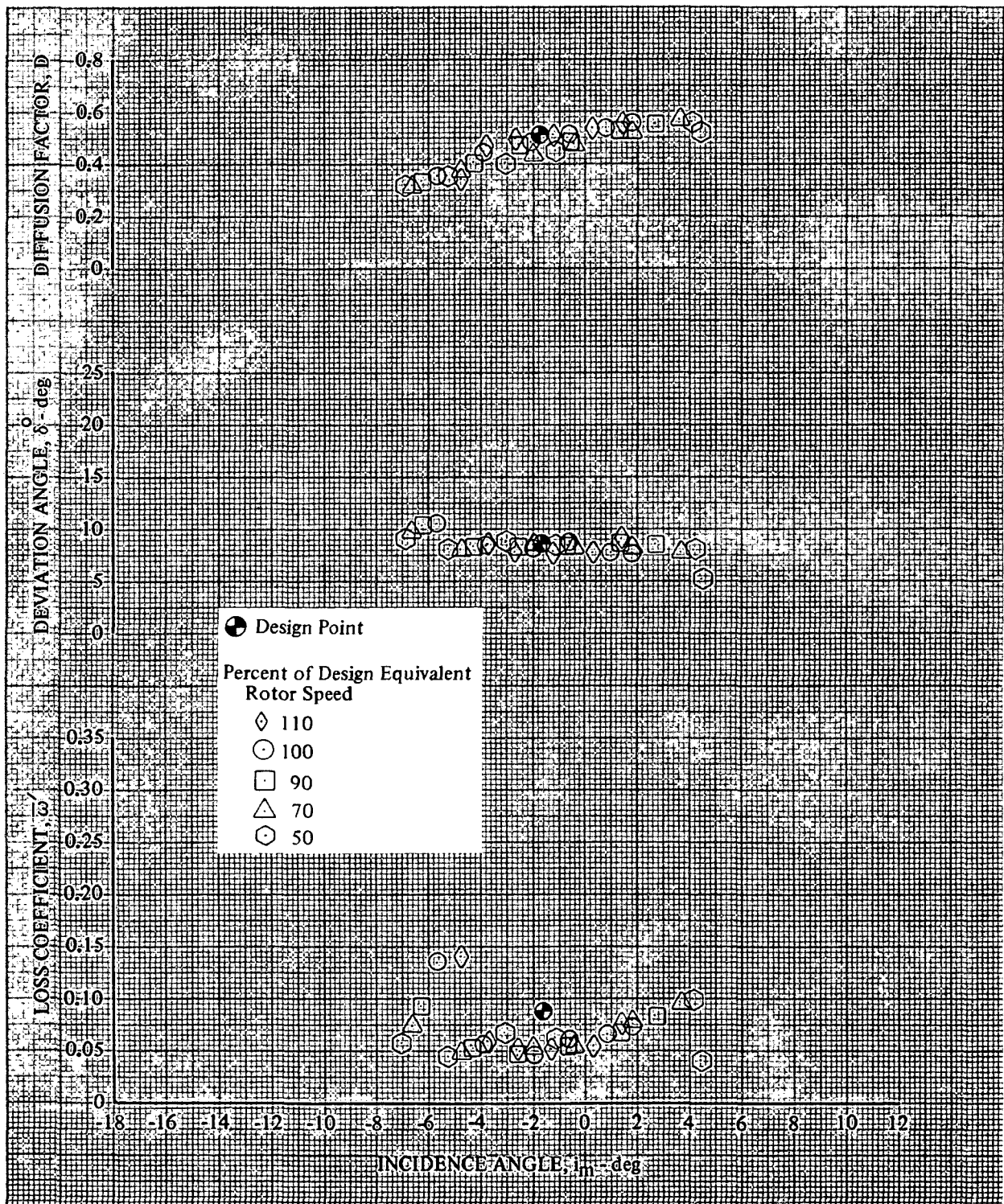


Figure 14d. Tandem Rotor C Blade Element
Performance, 30% Span from Tip

DF 91036

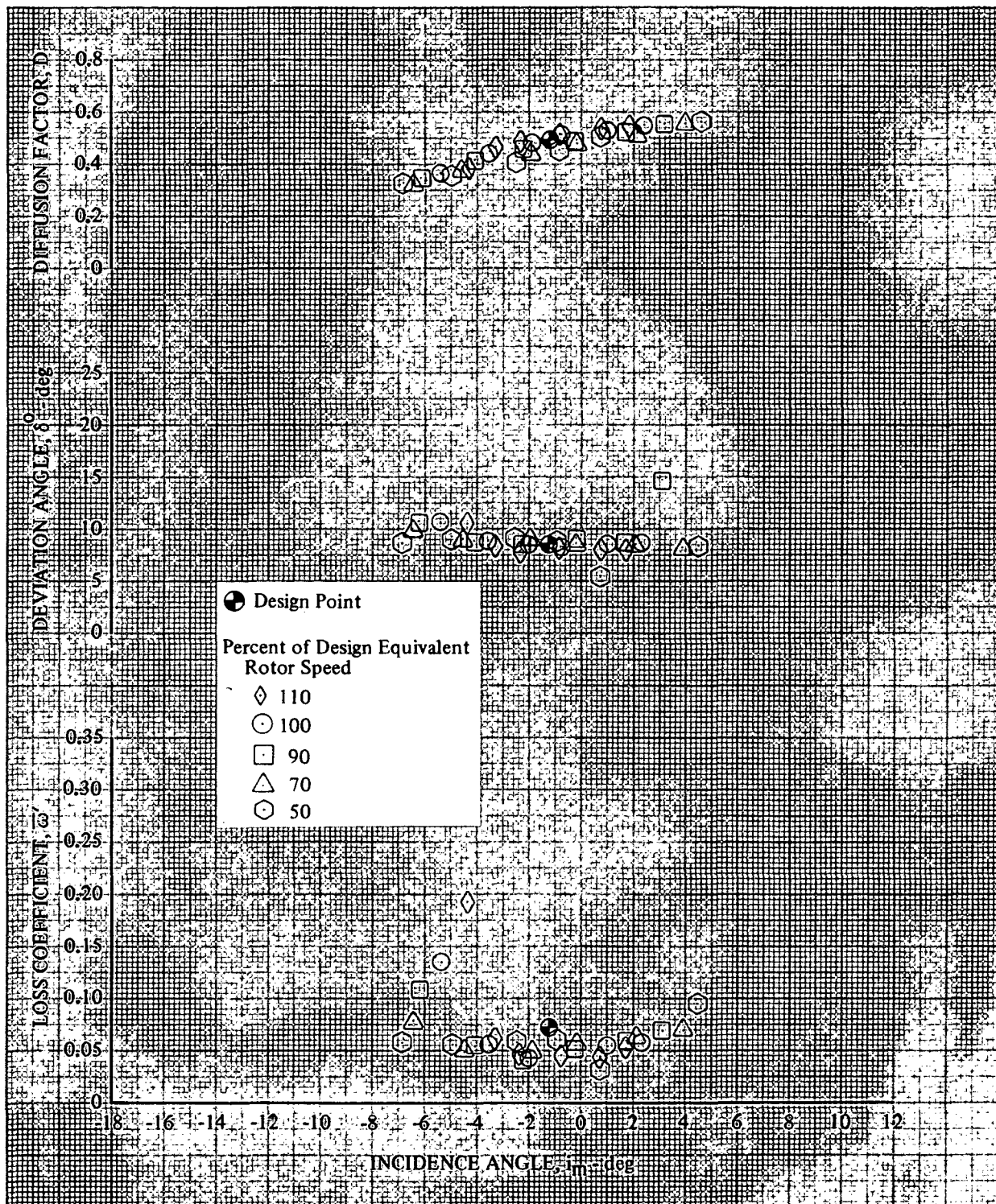


Figure 14e. Tandem Rotor C Blade Element Performance, 50% Span

DF 91037

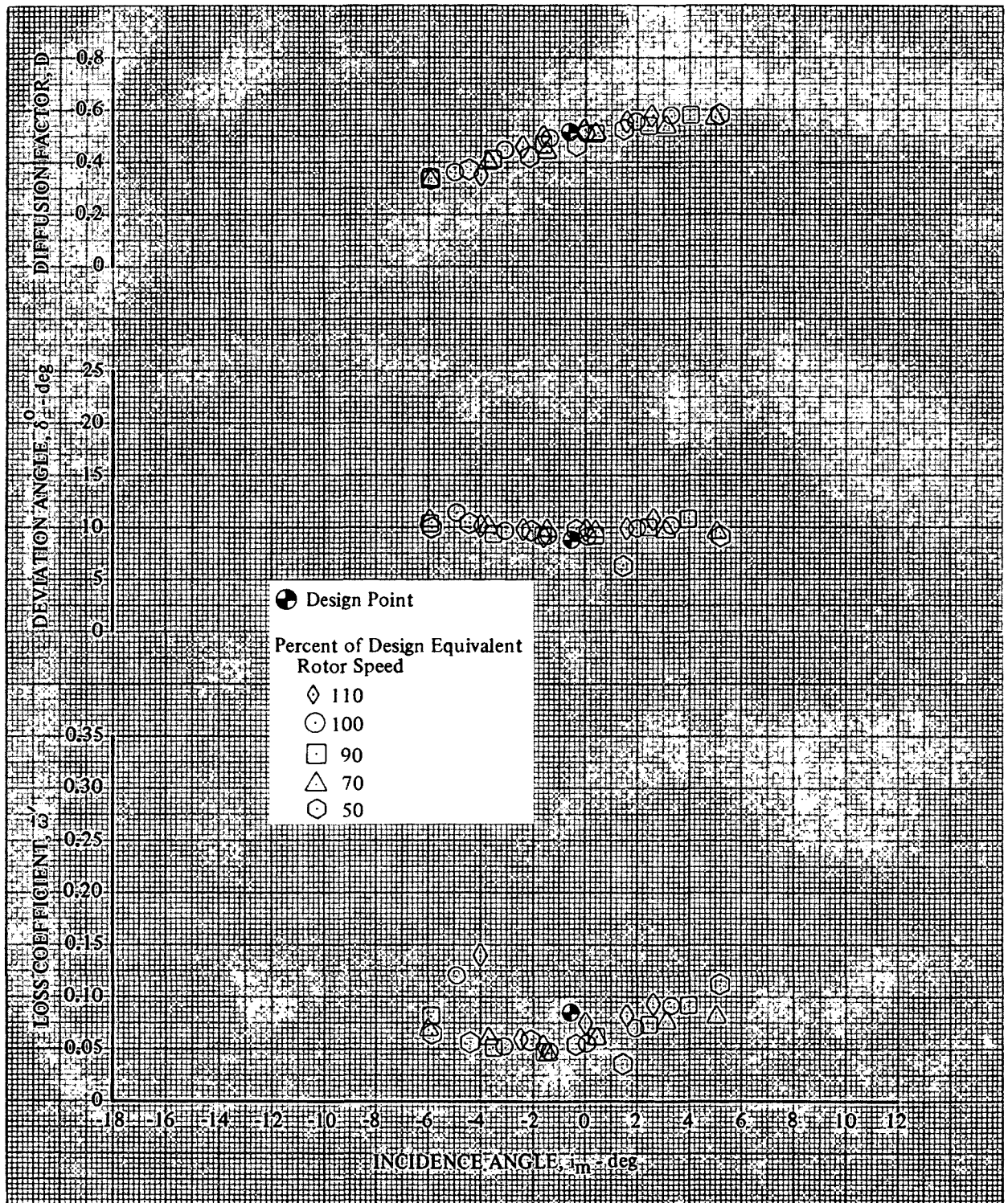


Figure 14f. Tandem Rotor C Blade Element Performance, 70% Span from Tip

DF 91038

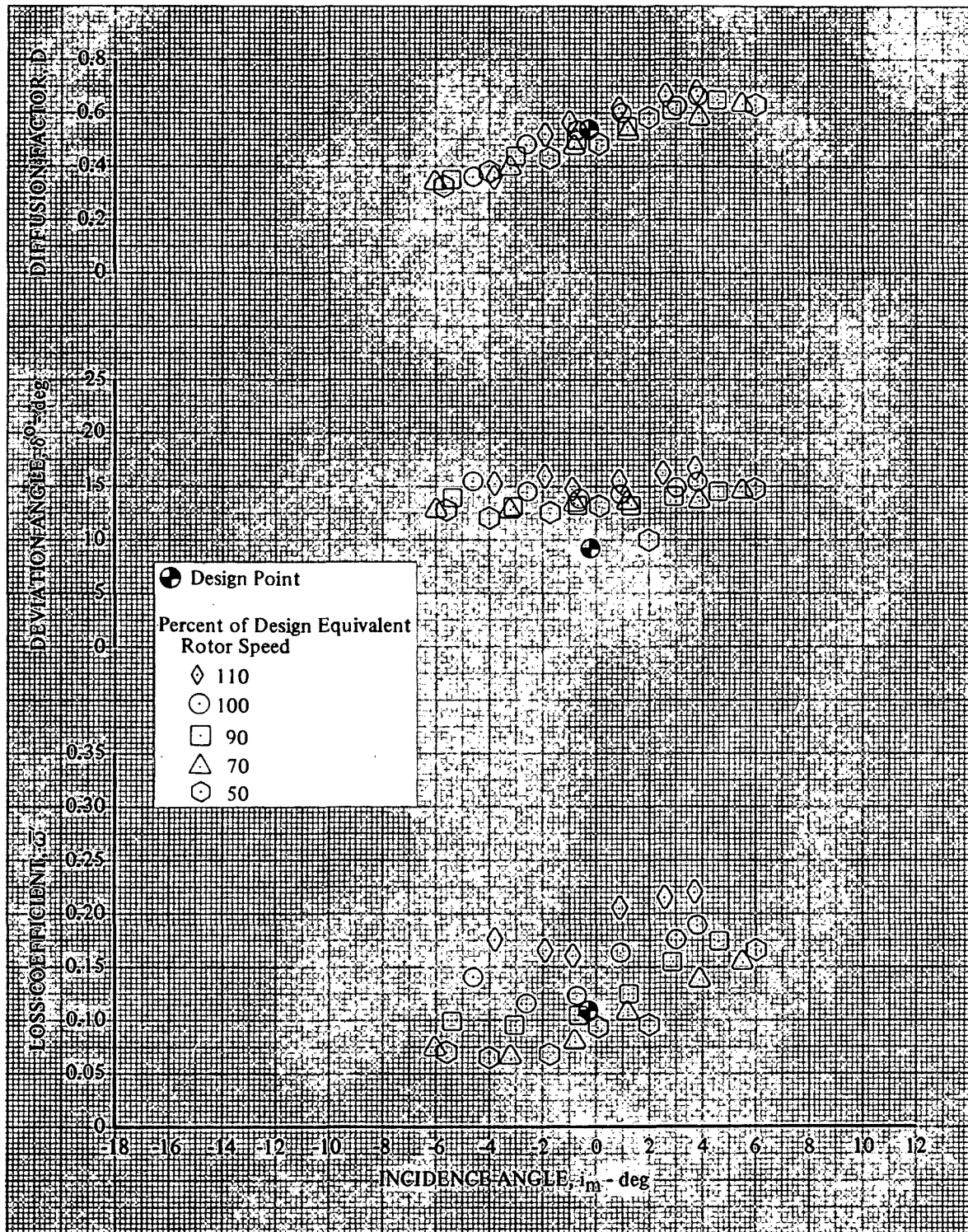


Figure 14g. Tandem Rotor C Blade Element
Performance, 85% Span from Tip

DF 91039

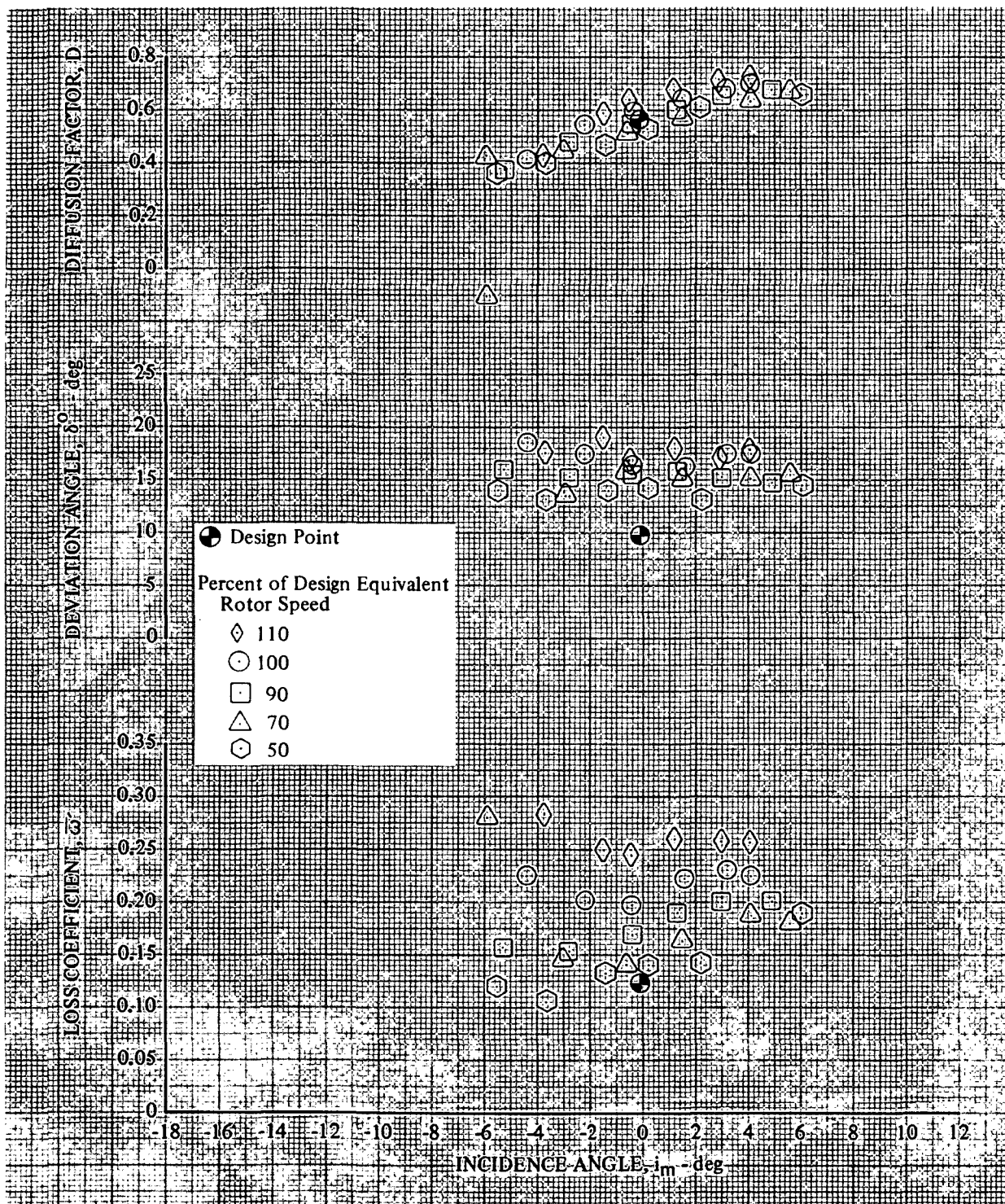


Figure 14h. Tandem Rotor C Blade Element
Performance, 90% Span from Tip

DF 91040

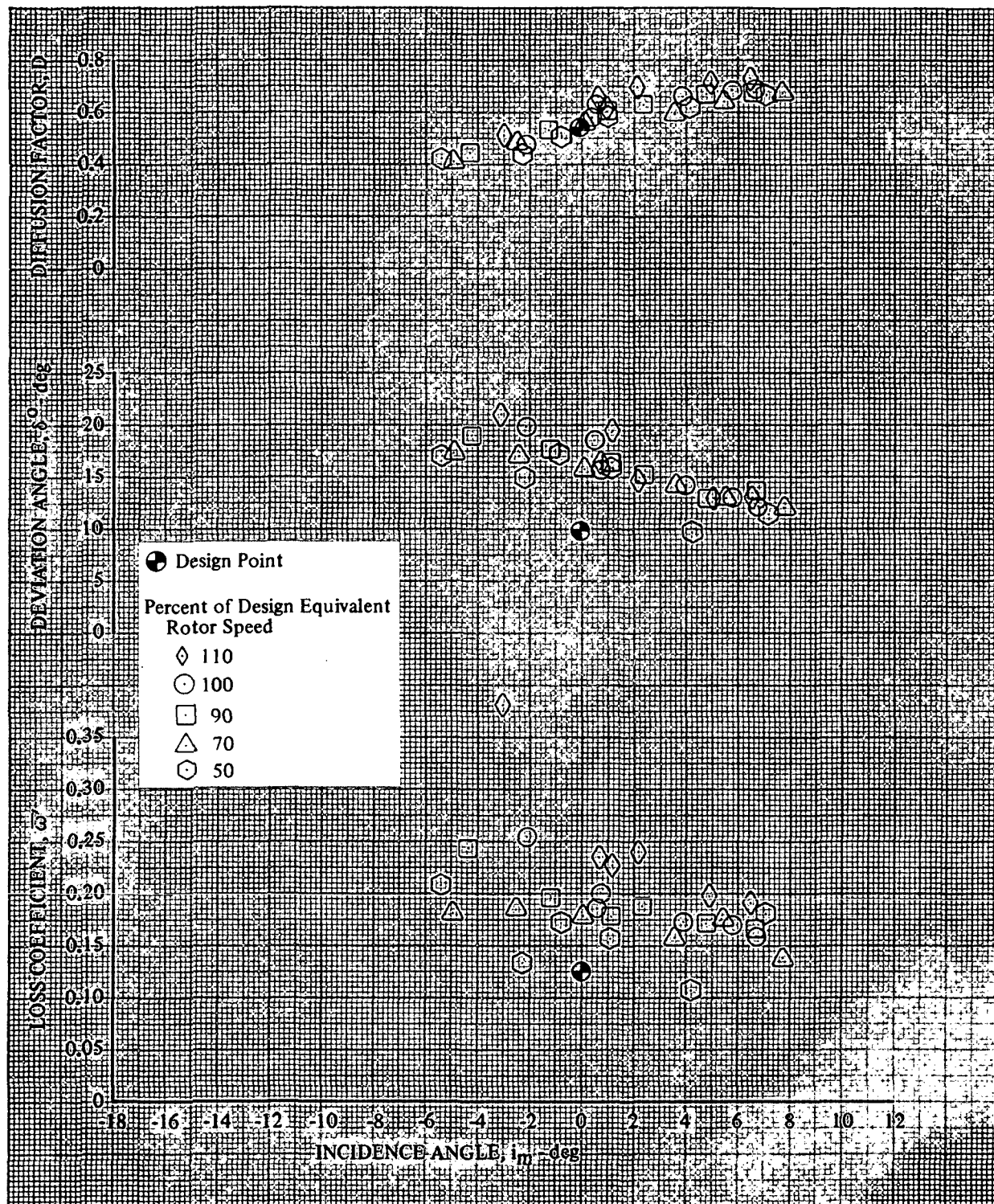


Figure 14i. Tandem Rotor C Blade Element
Performance, 95% Span from Tip

DF 91041

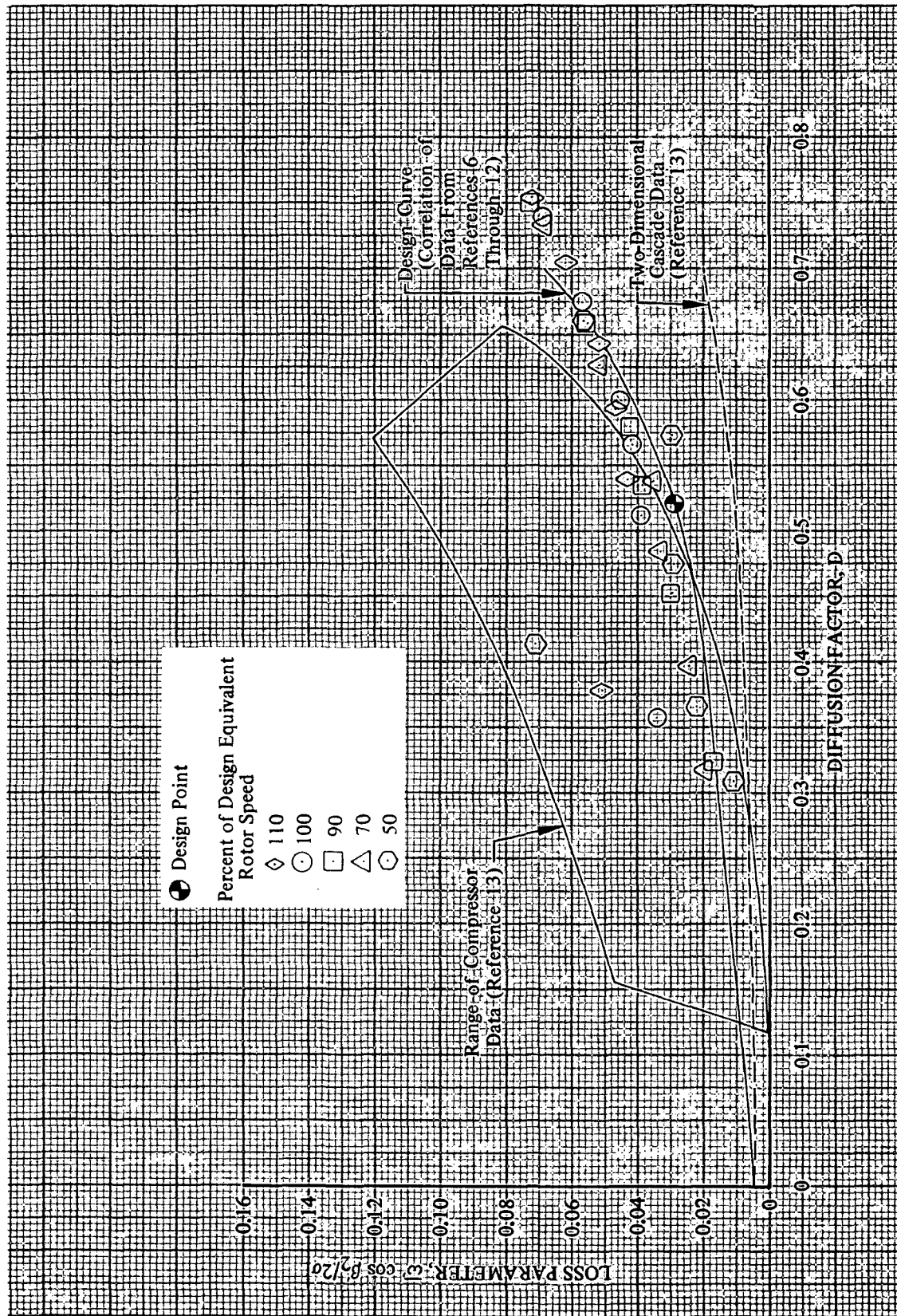


Figure 15a. Tandem Rotor C Loss Parameter vs Diffusion Factor, 10% Span from Tip

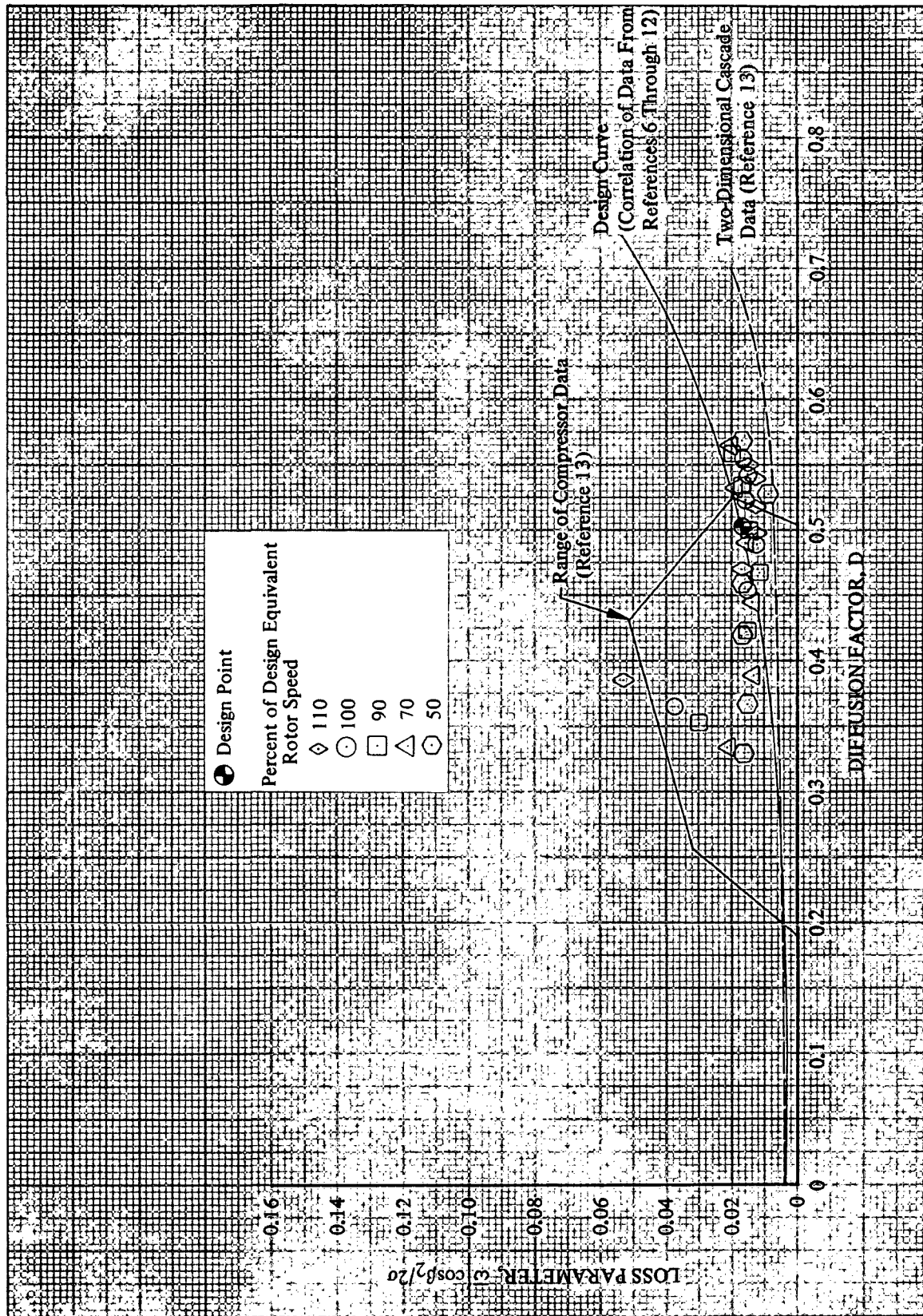


Figure 15b. Tandem Rotor C Loss Parameter vs Diffusion Factor, 50% Span :

DF 91043

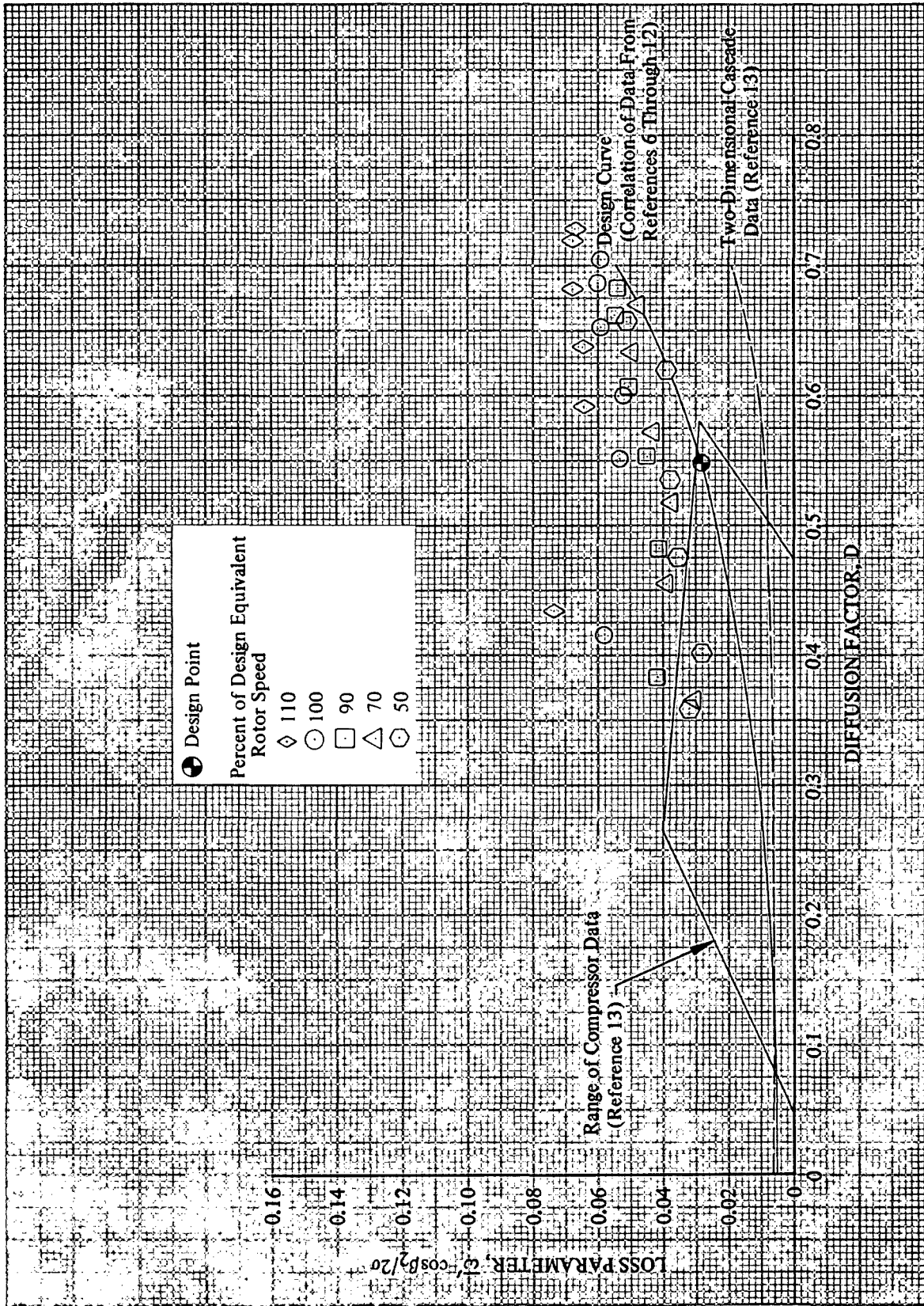


Figure 15c. Tandem Rotor C Loss Parameter vs Diffusion Factor, 90% Span from Tip

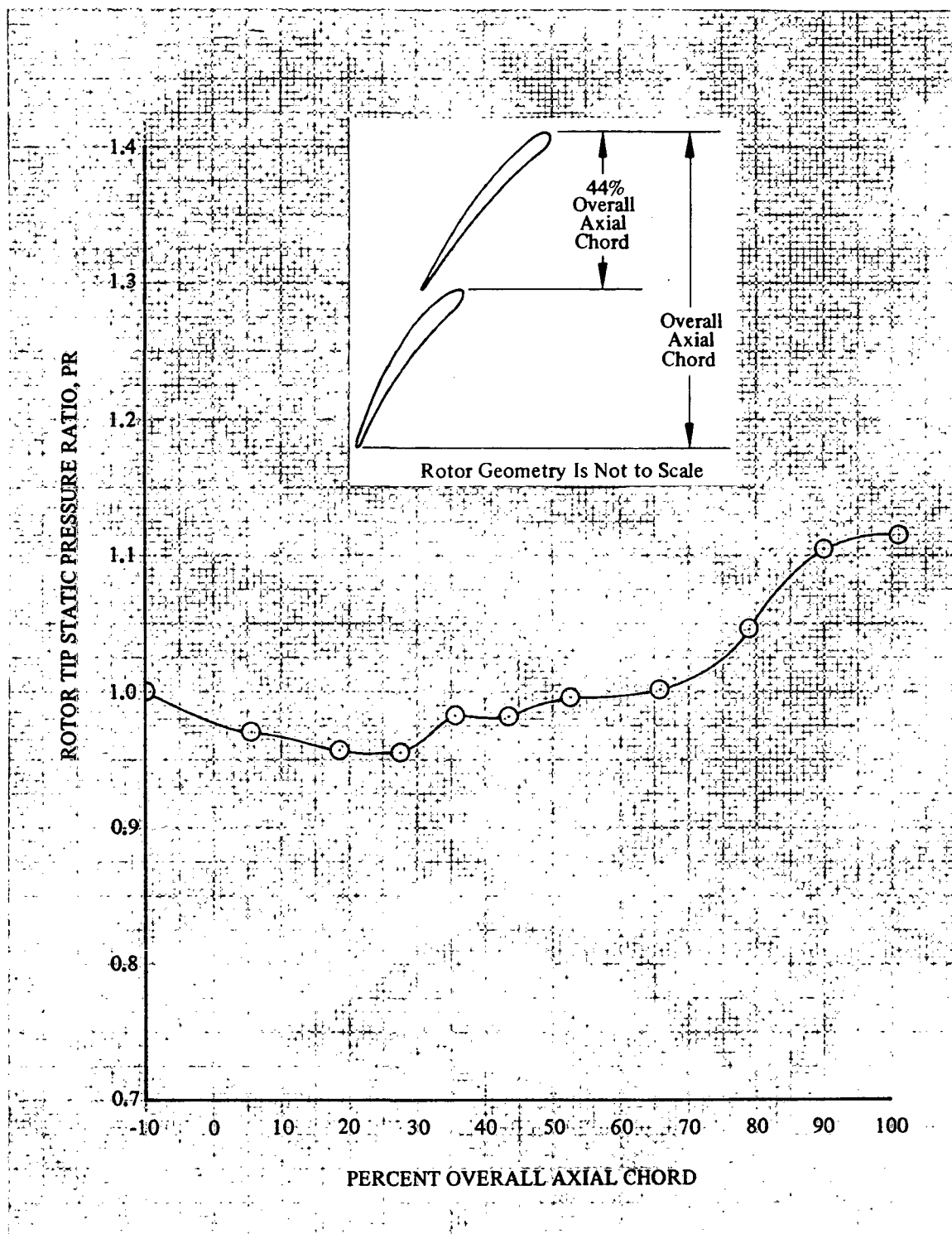


Figure 16a. Rotor Tip Static Pressure Ratio at
Design Equivalent Rotor Speed,
Equivalent Weight Flow = 120.83 lb/sec

DF 91045

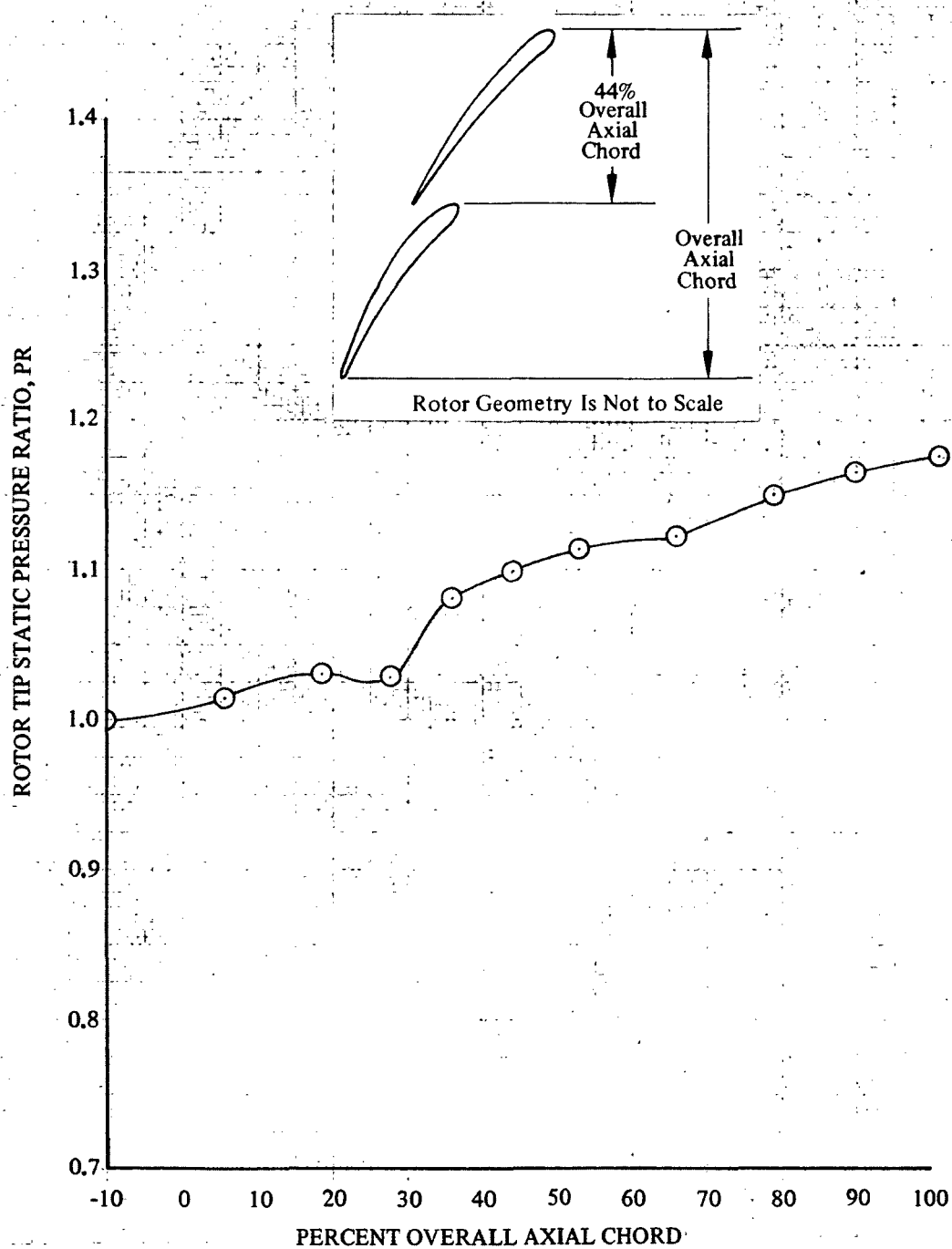


Figure 16b. Rotor Tip Static Pressure Ratio at
Design Equivalent Rotor Speed,
Equivalent Weight Flow = 114.12 lb/sec

DF 91046

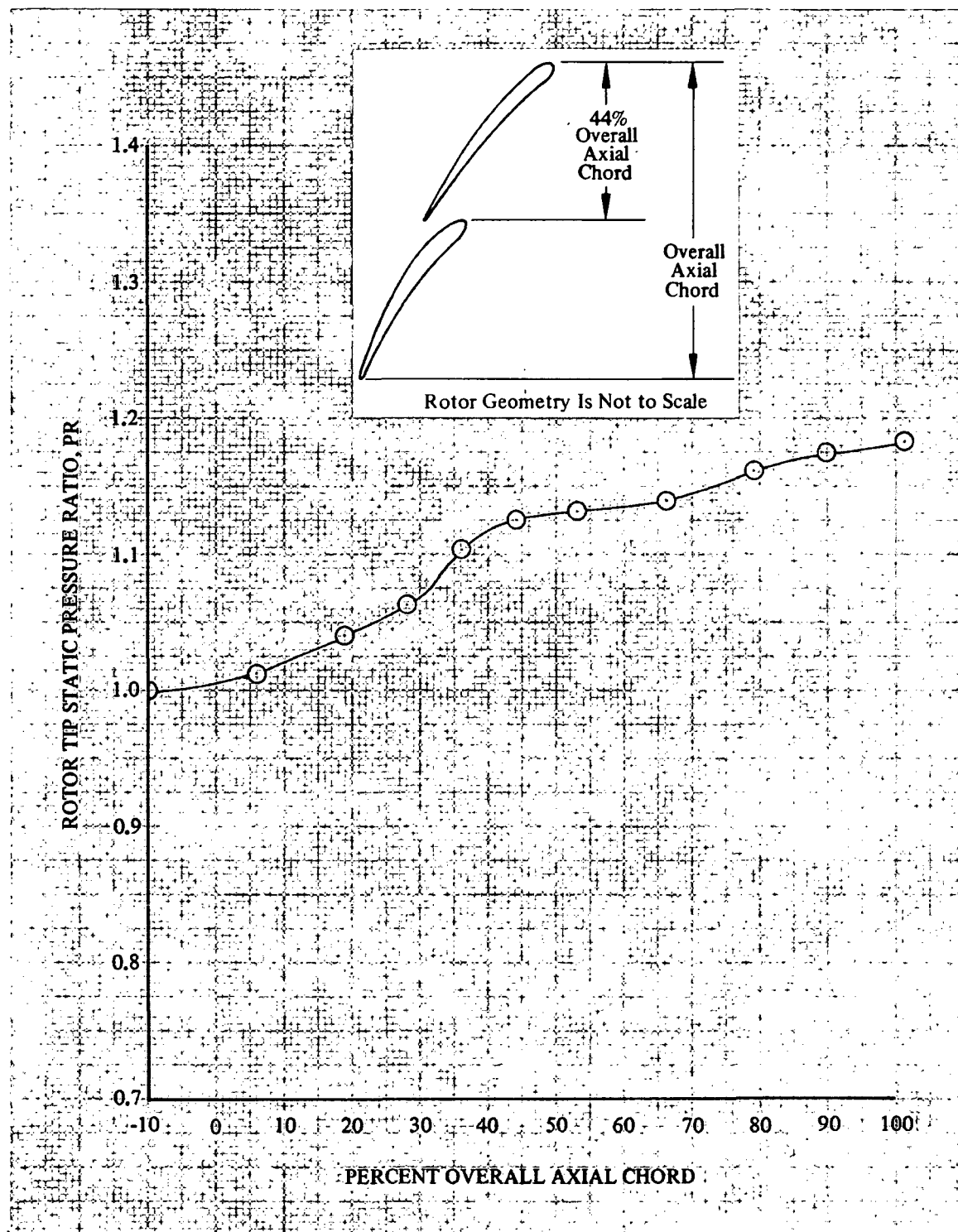


Figure 16c. Rotor Tip Static Pressure Ratio at
Design Equivalent Rotor Speed,
Equivalent Weight Flow = 108.33 lb/sec

DF 91047

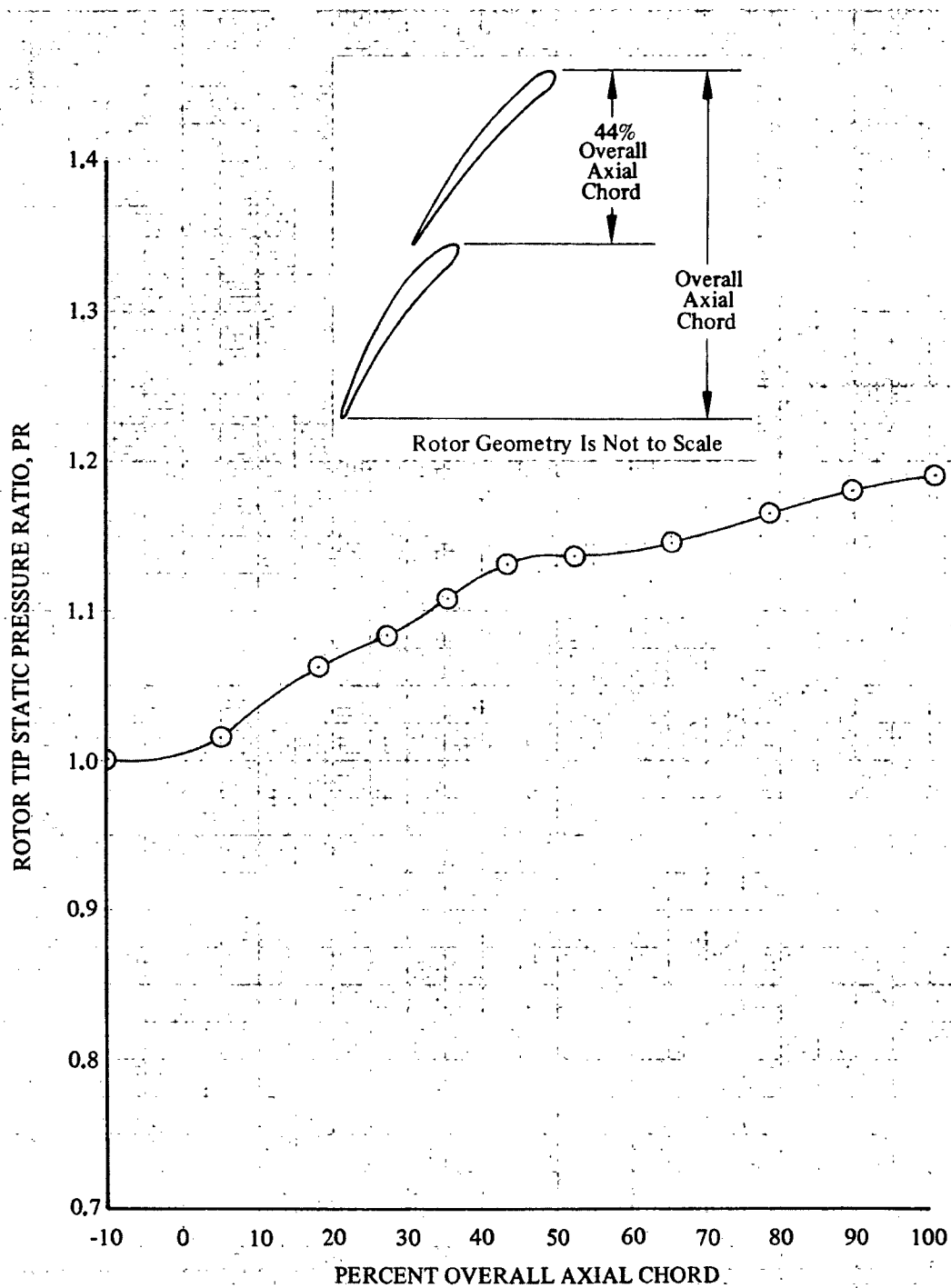


Figure 16d. Rotor Tip Static Pressure Ratio at Design Equivalent Rotor Speed, Equivalent Weight Flow = 102.98 lb/sec

DF 91048

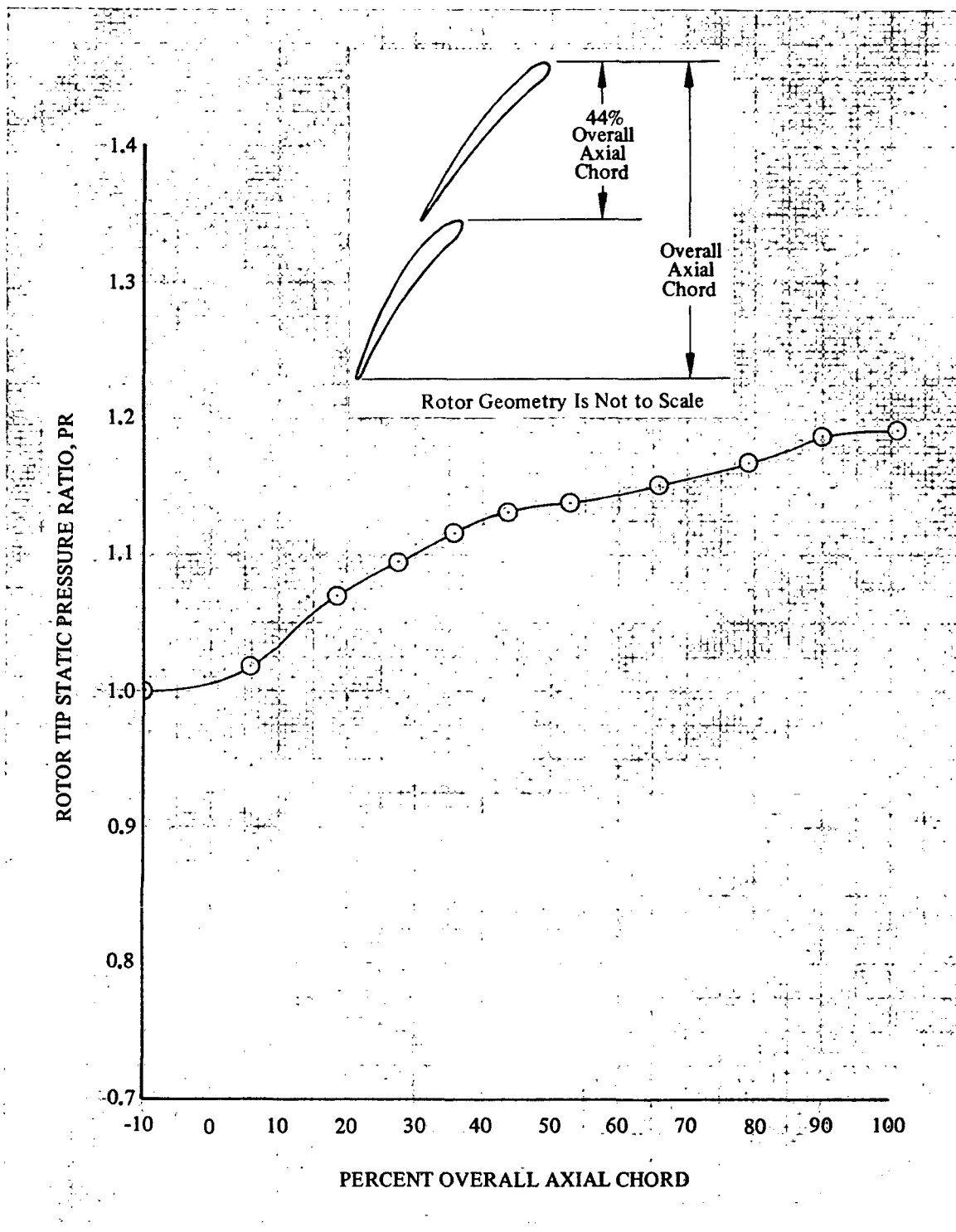


Figure 16e. Rotor Tip Static Pressure Ratio at Design DF 91049
Equivalent Rotor Speed, Equivalent
Weight Flow = 98.54 lb/sec

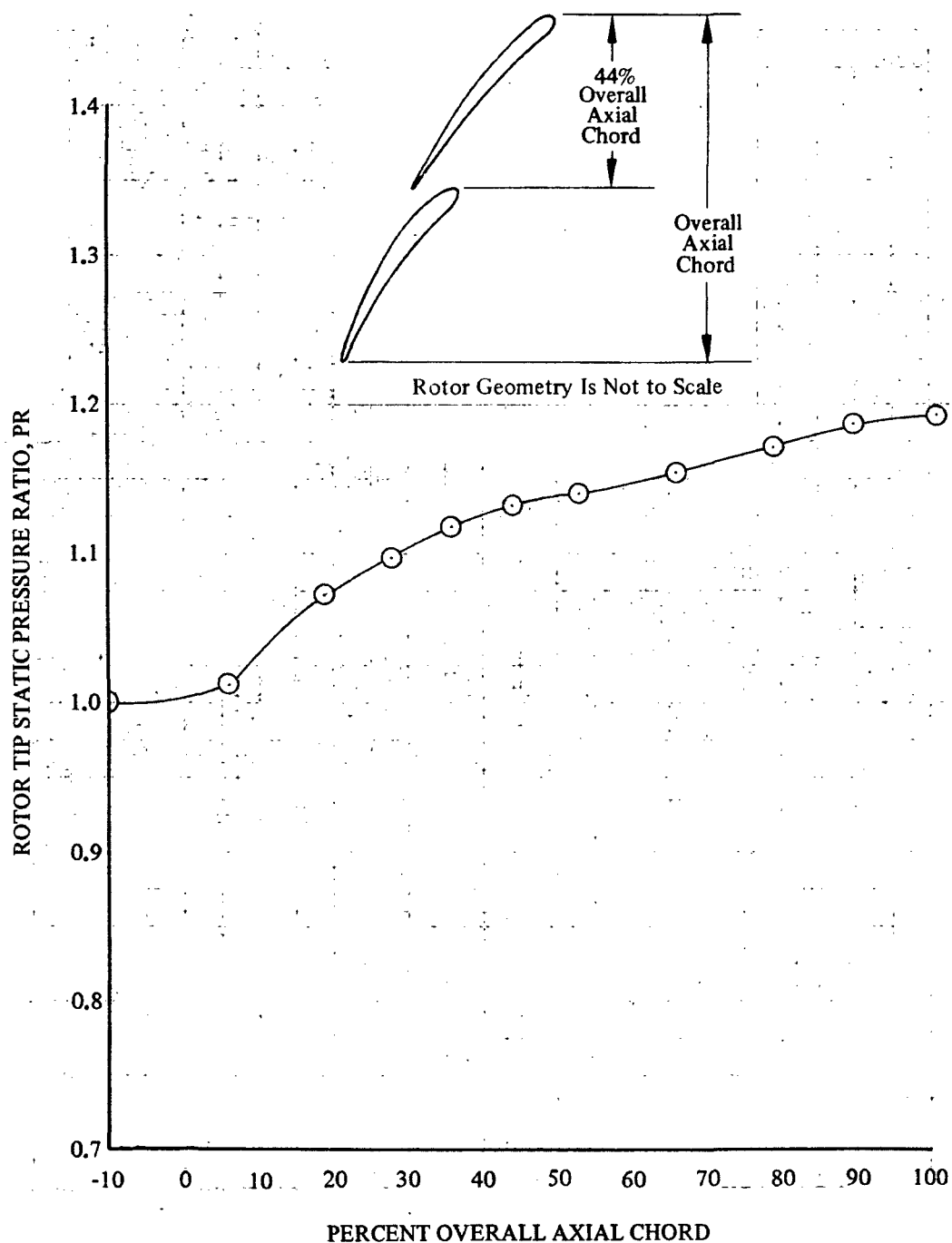


Figure 16f. Rotor Tip Static Pressure Ratio at Design DF 91050
Equivalent Rotor Speed, Equivalent Weight
Flow = 94.51 lb/sec

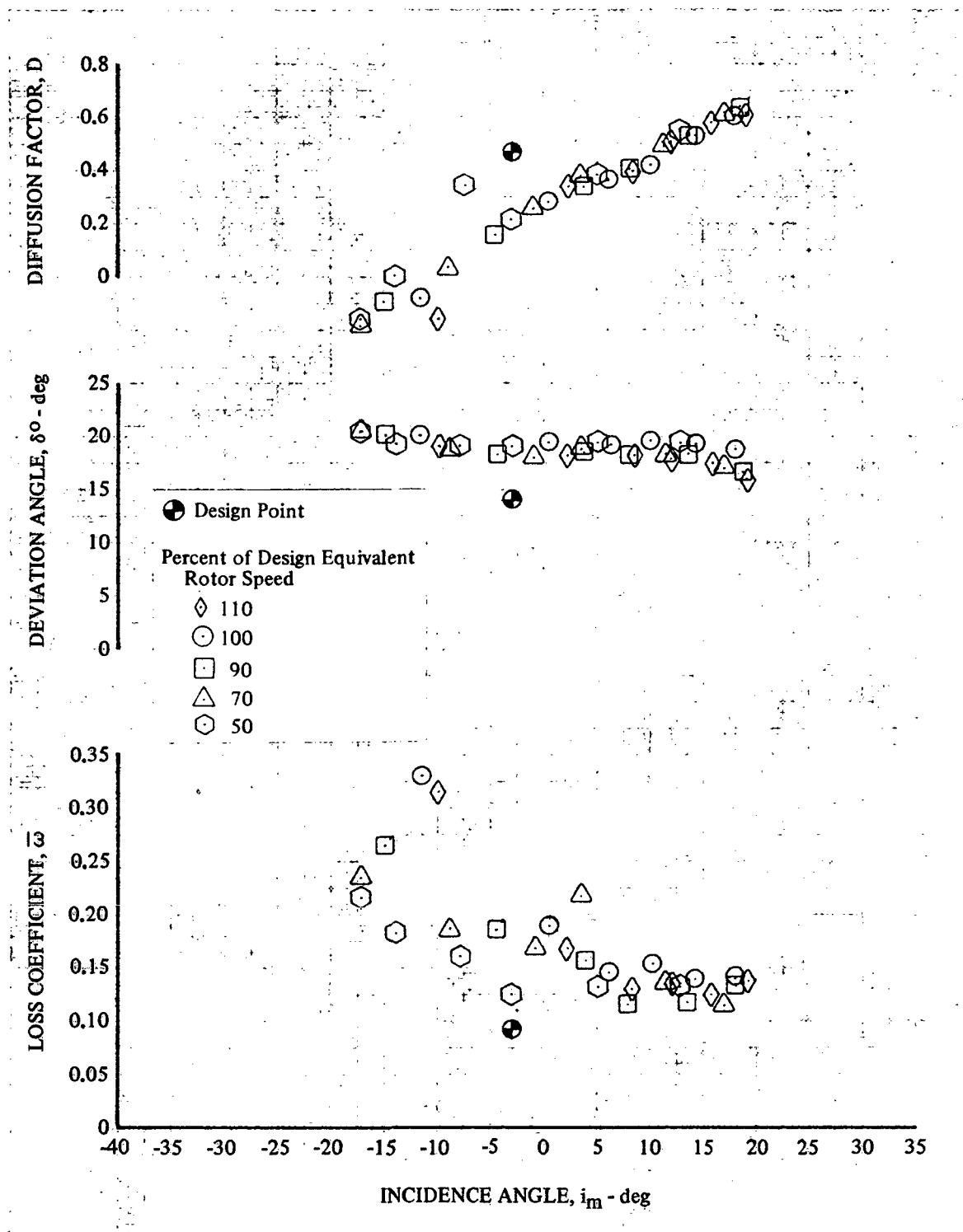


Figure 17a. Tandem Stator B Blade Element Performance, 5% Span from Tip

DF 91051

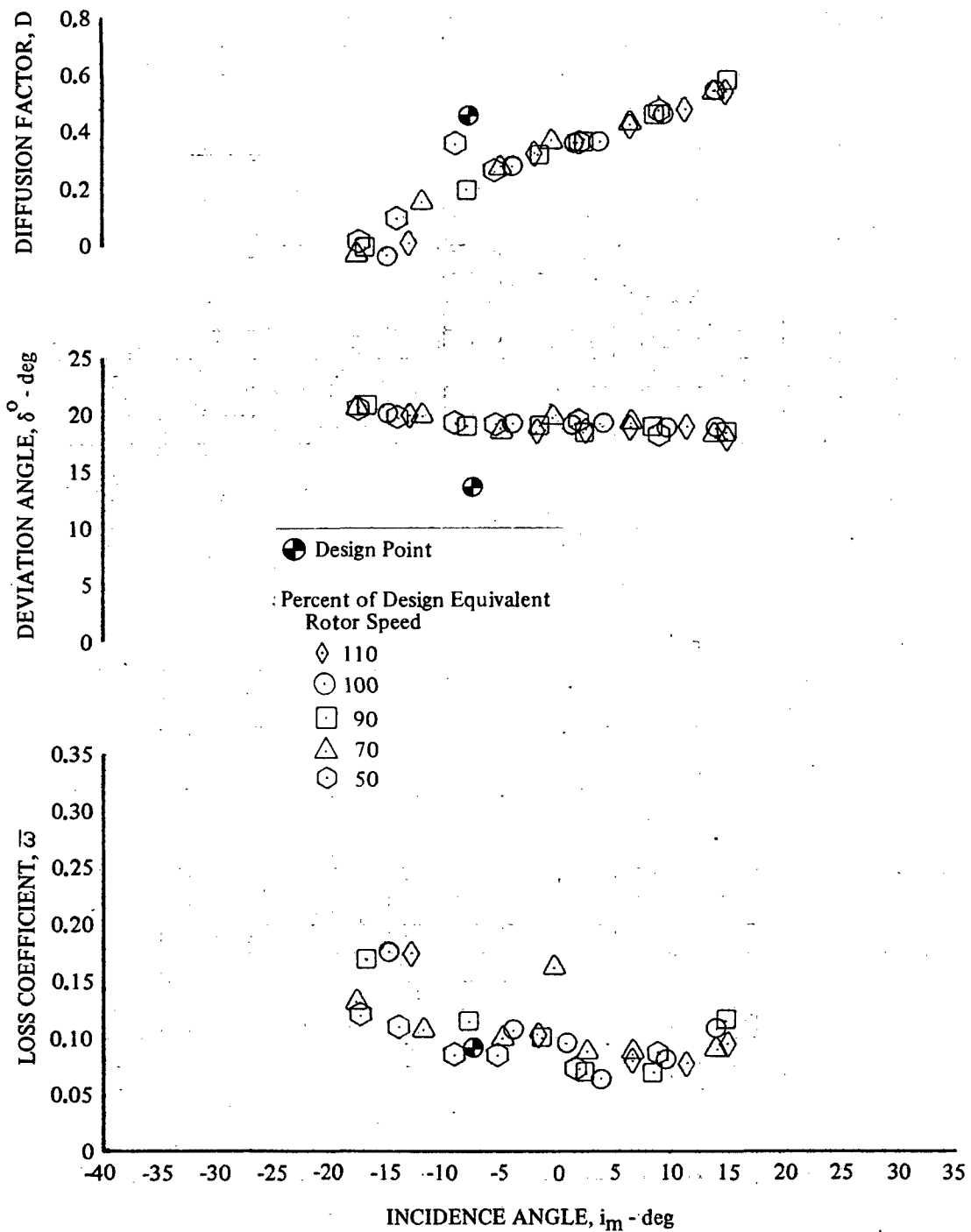


Figure 17b. Tandem Stator B Blade Element Performance, 10% Span from Tip

DF 91052

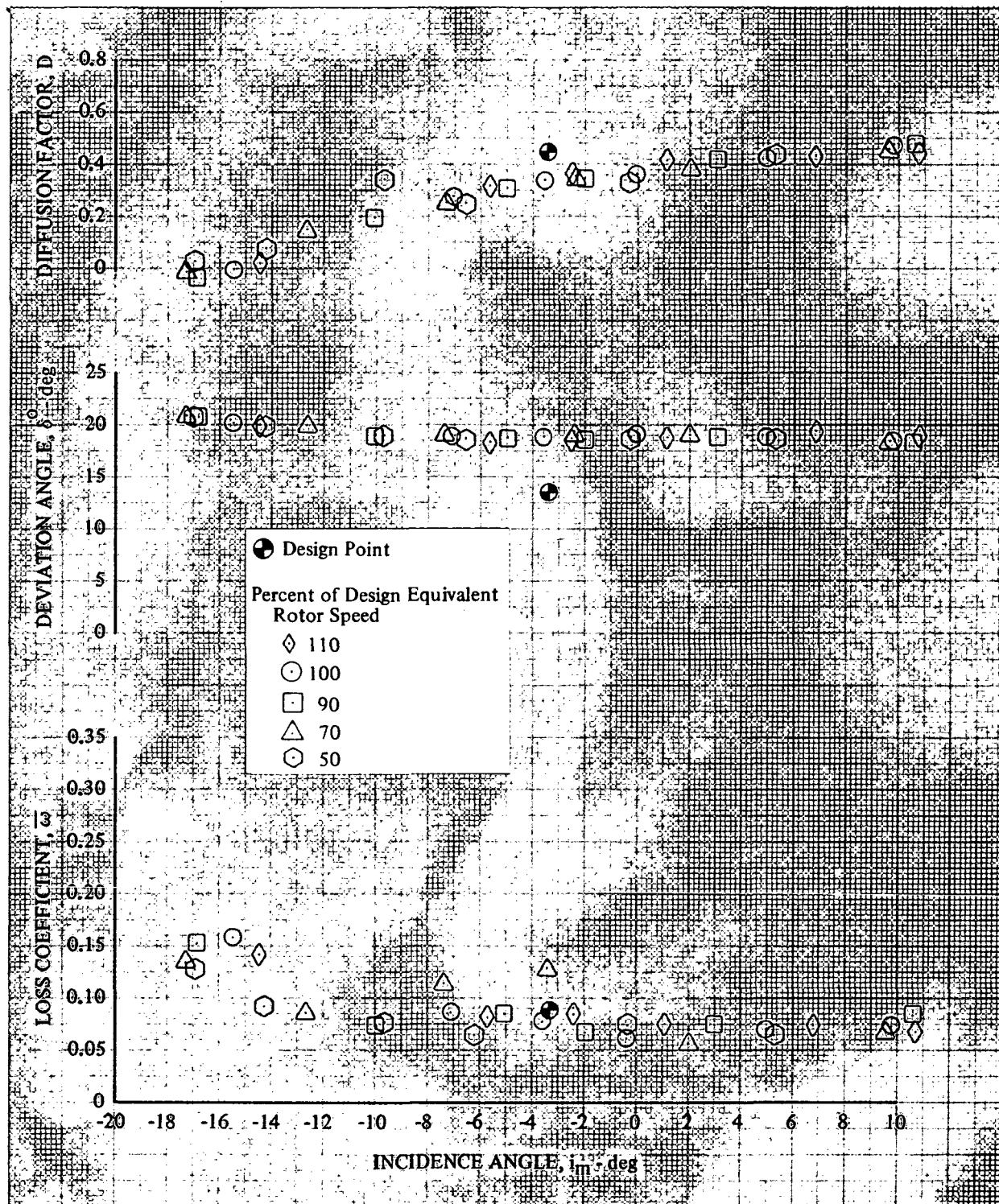


Figure 17c. Tandem Stator B Blade Element
Performance, 15% Span from Tip

DF 91053

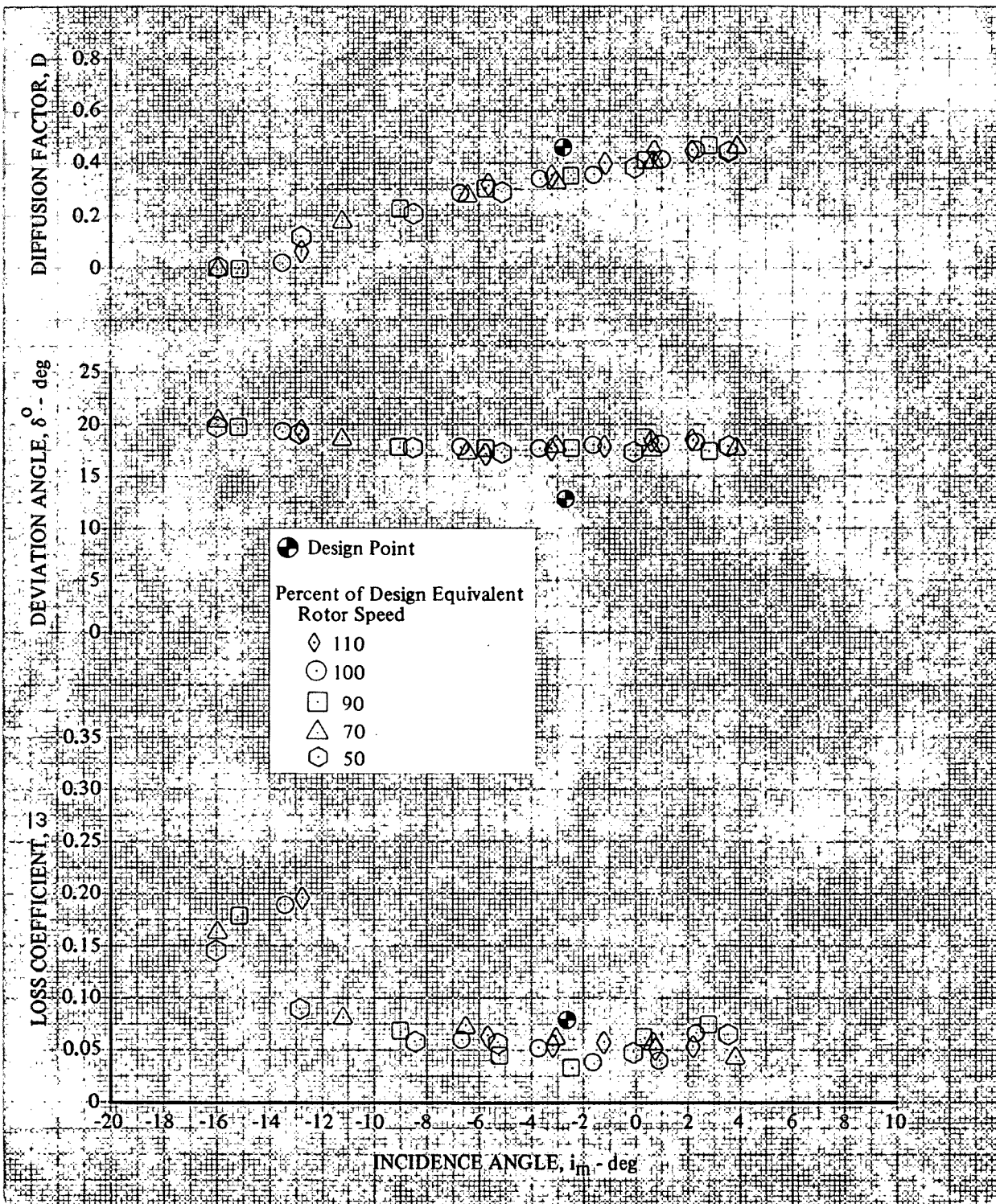


Figure 17d. Tandem Stator B Blade Element
Performance, 30% Span from Tip

DF 91054

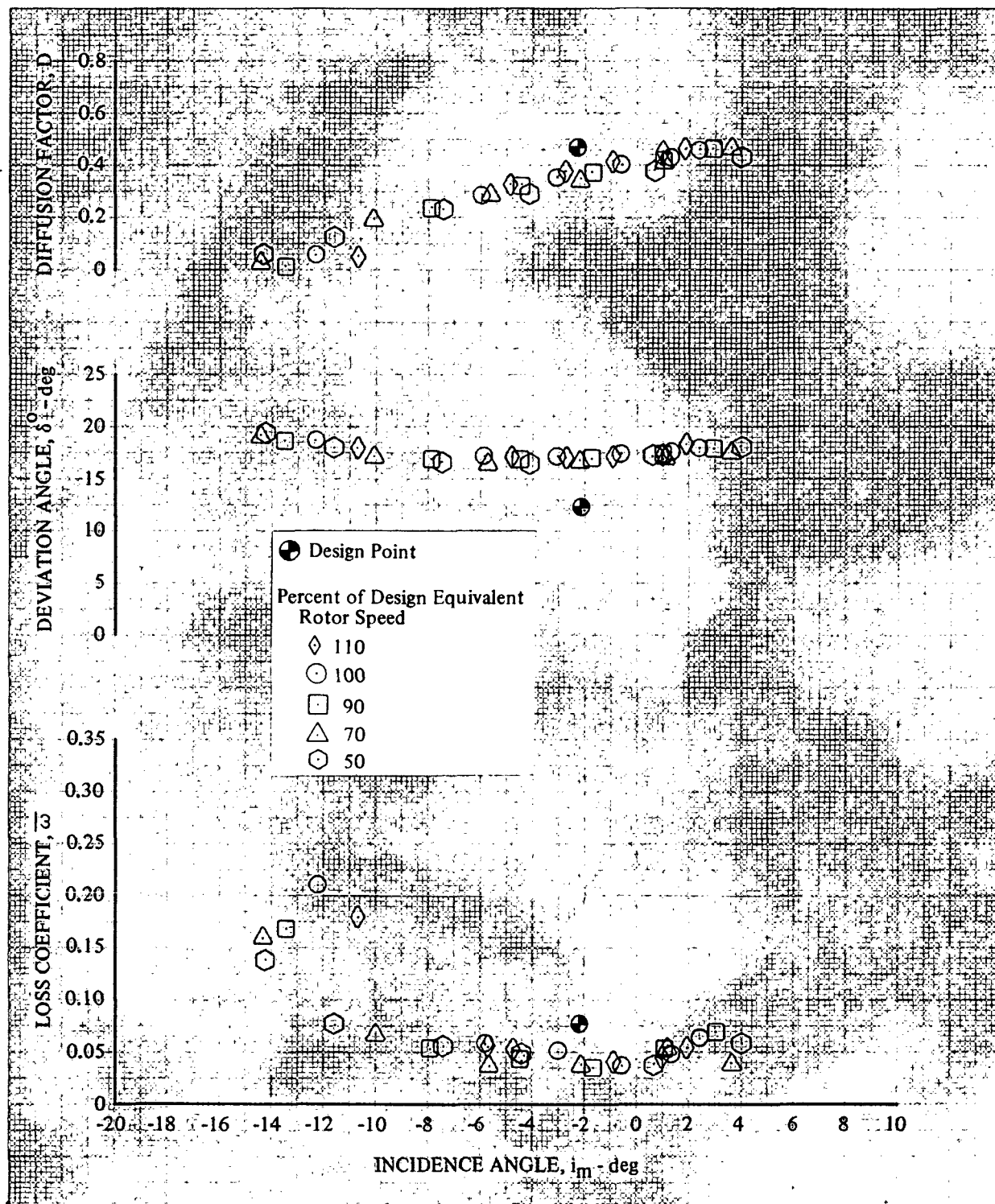


Figure 17e. Tandem Stator B Blade Element Performance, 50% Span

DF 91055

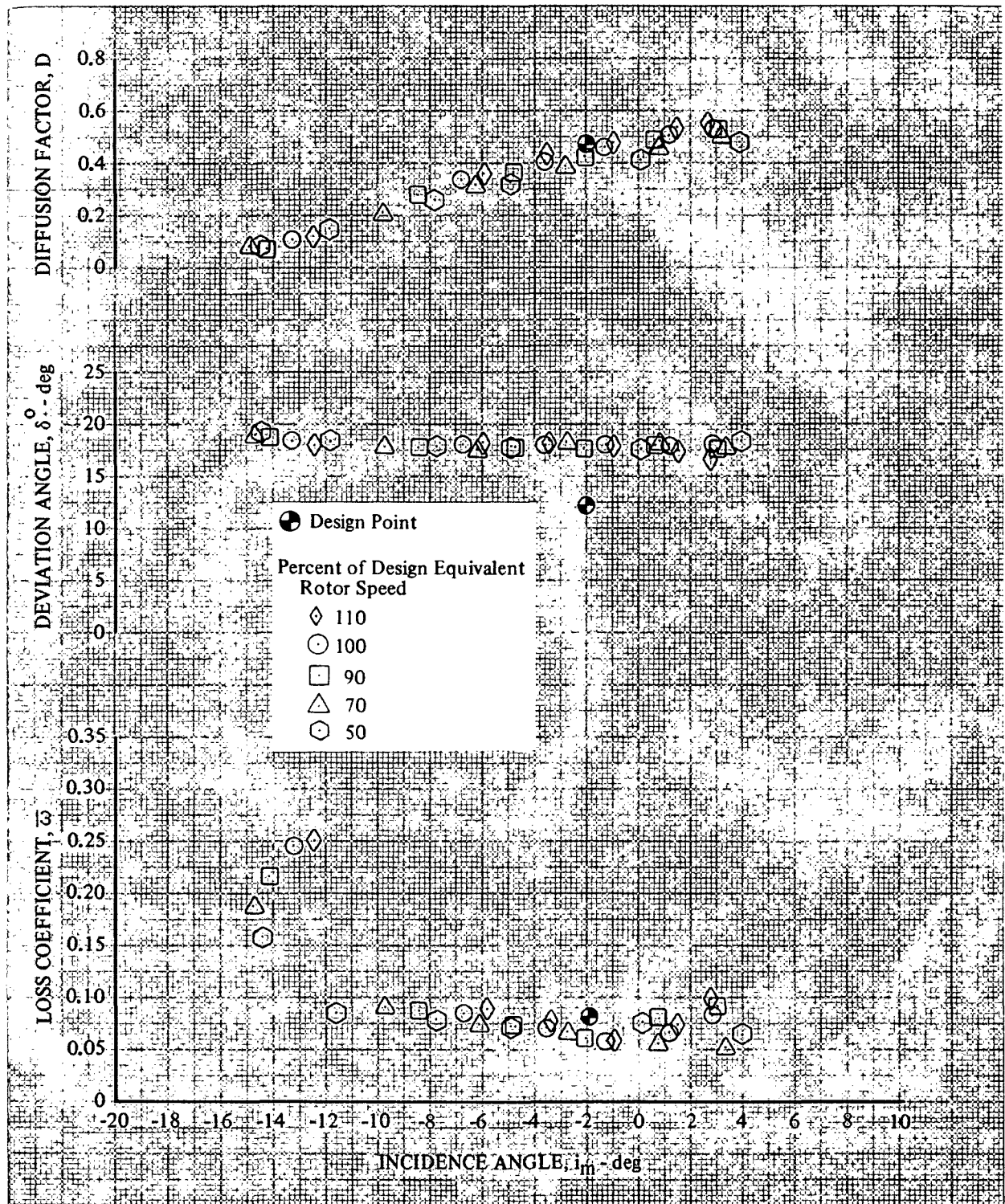


Figure 17f. Tandem Stator B Blade Element
Performance, 70% Span from Tip

DF 91056

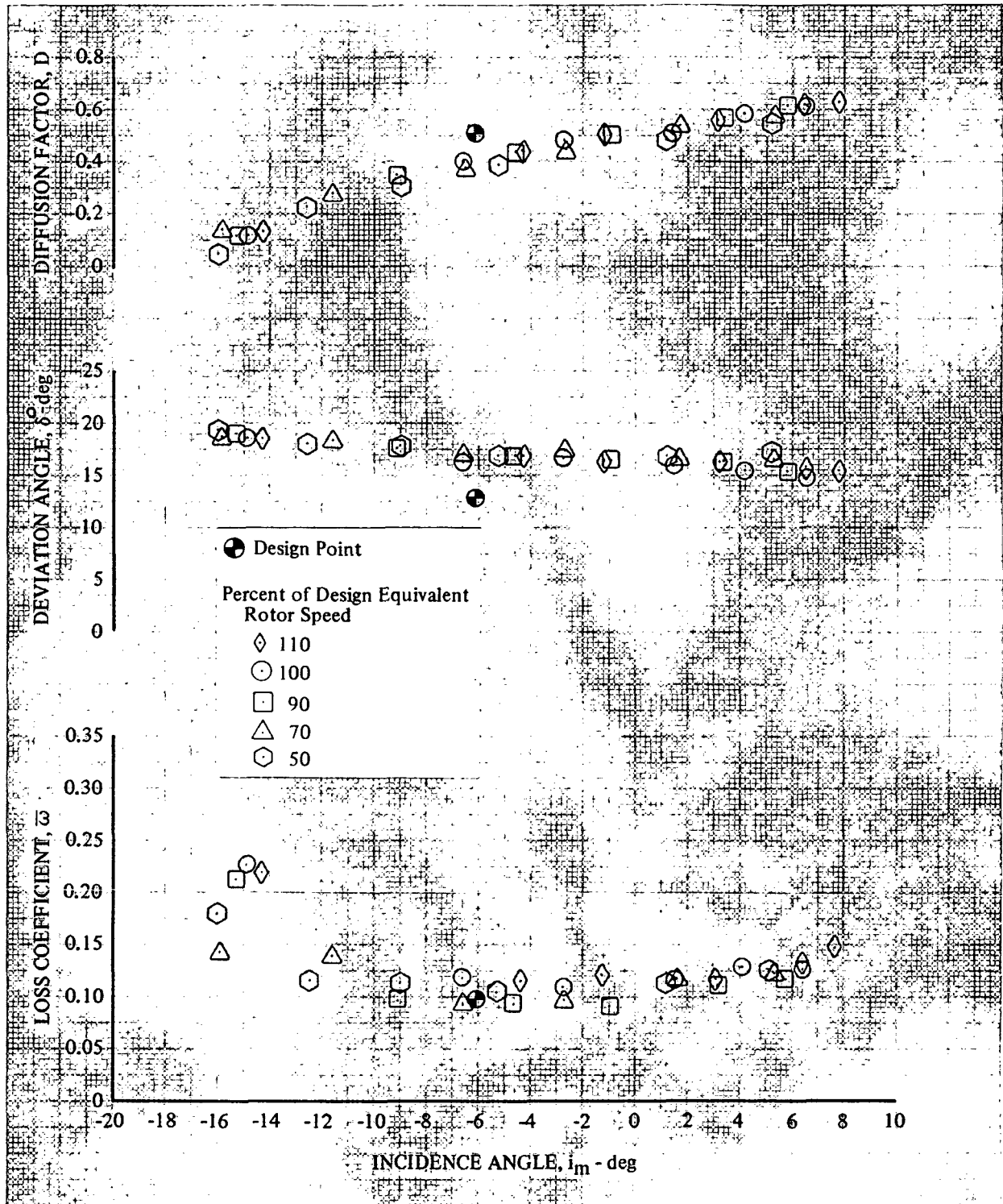


Figure 17g. Tandem Stator B Blade Element
Performance, 85% Span from Tip

DF 91057

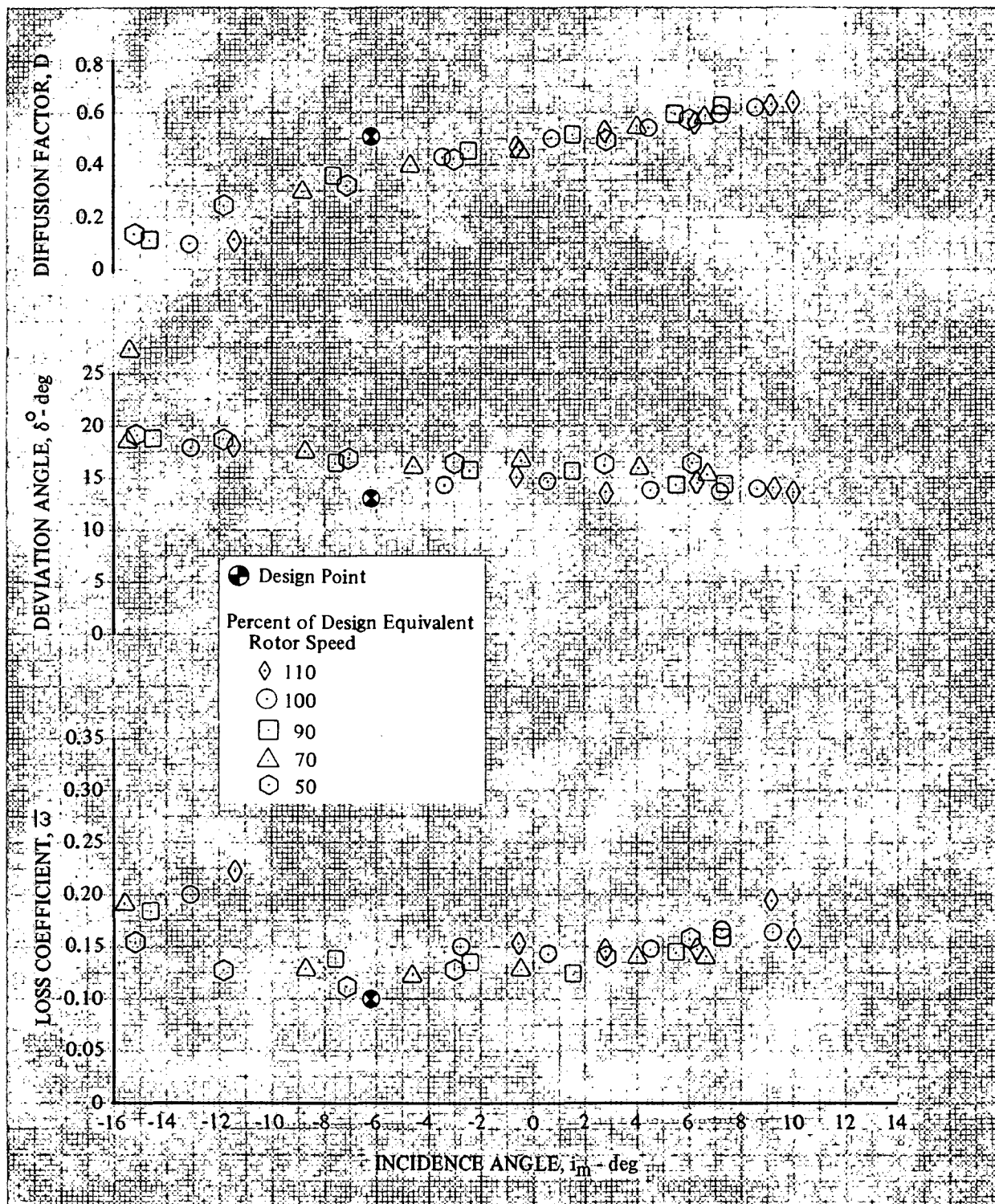


Figure 17h. Tandem Stator B Blade Element
Performance, 90% Span from Tip

DF 91058

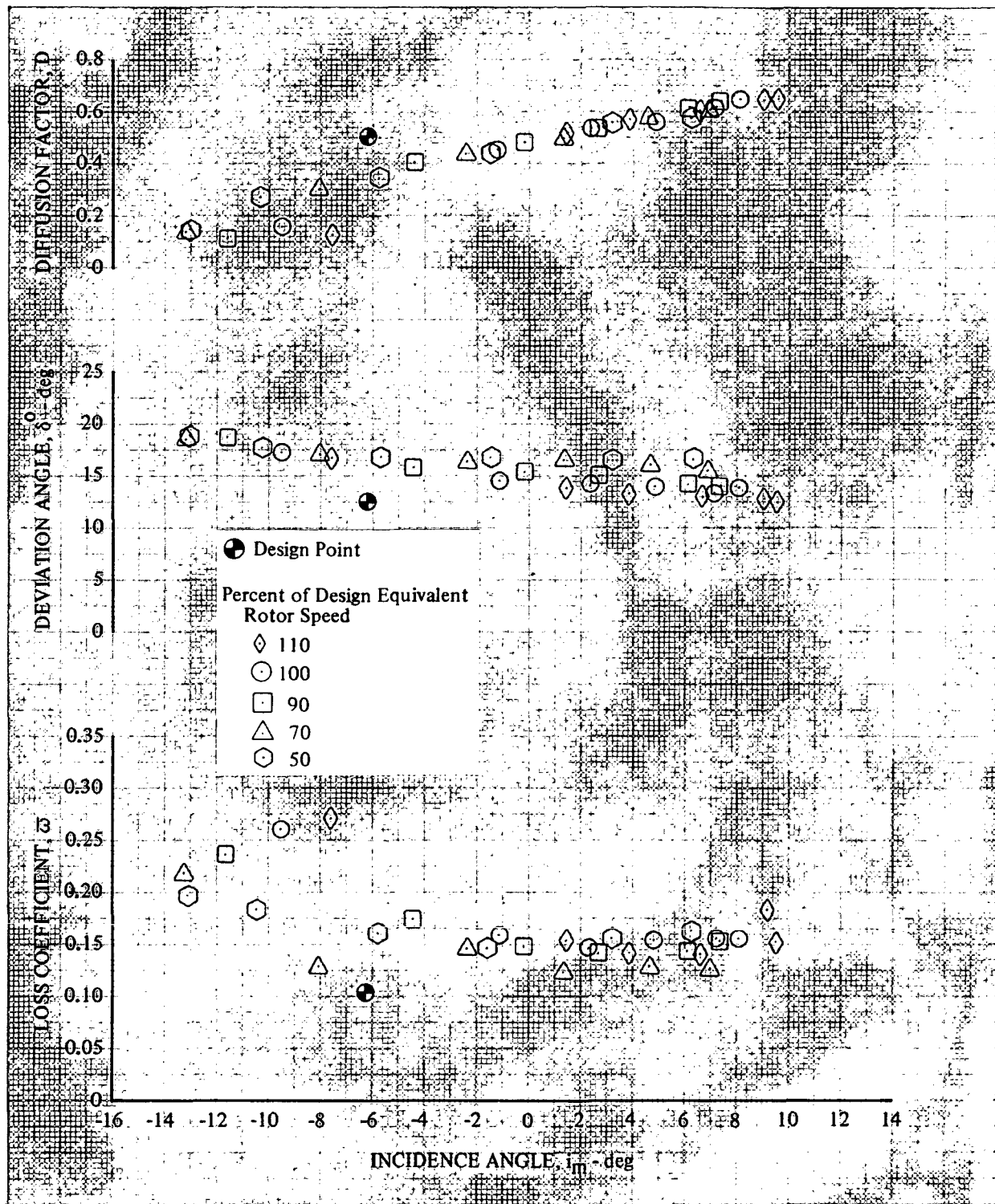


Figure 17i. Tandem Stator B Blade Element Performance, 95% Span from Tip

DF 91059

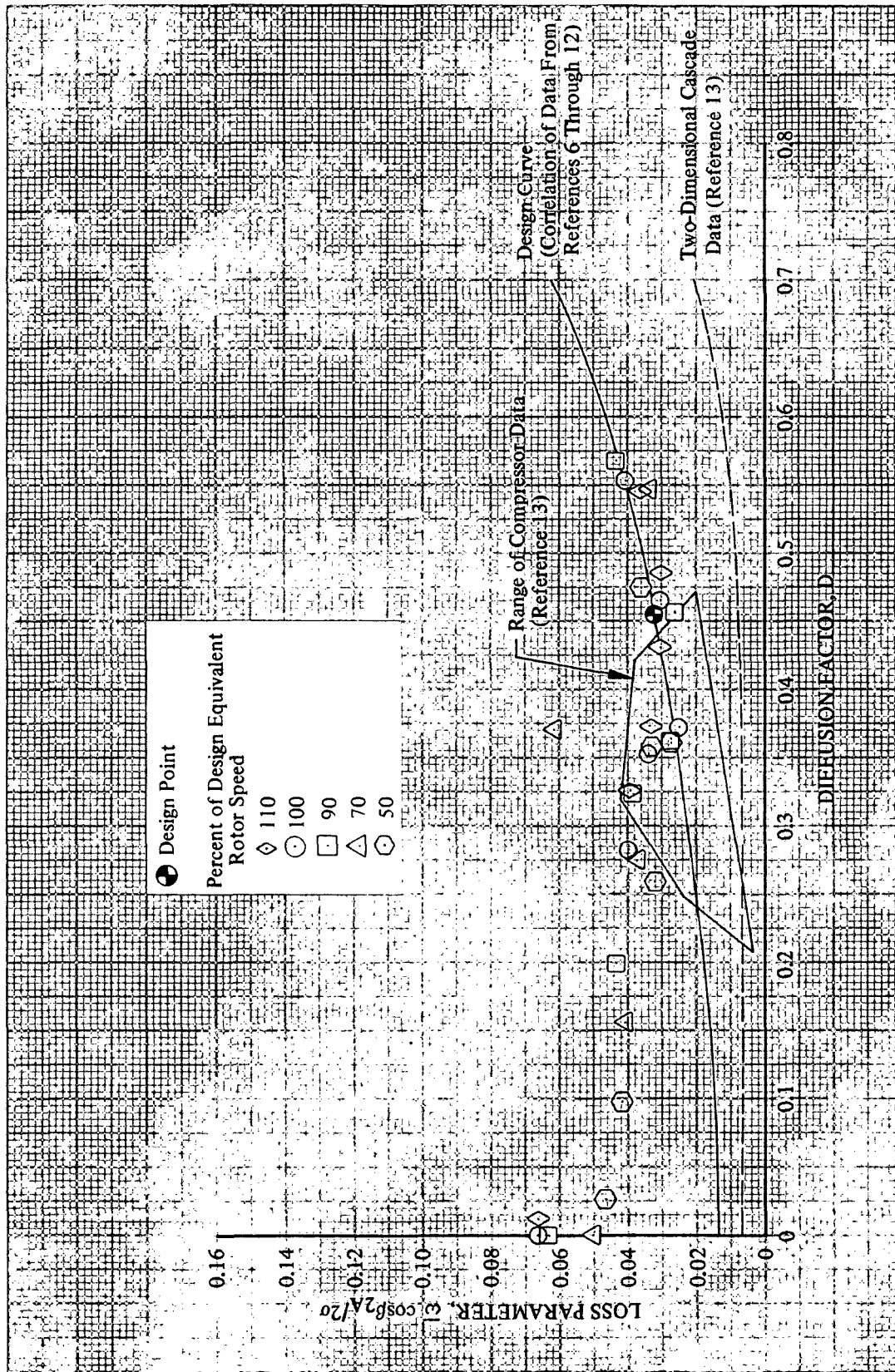


Figure 18a. Tandem Stator B Loss Parameter vs Diffusion Factor, 10% Span from Tip

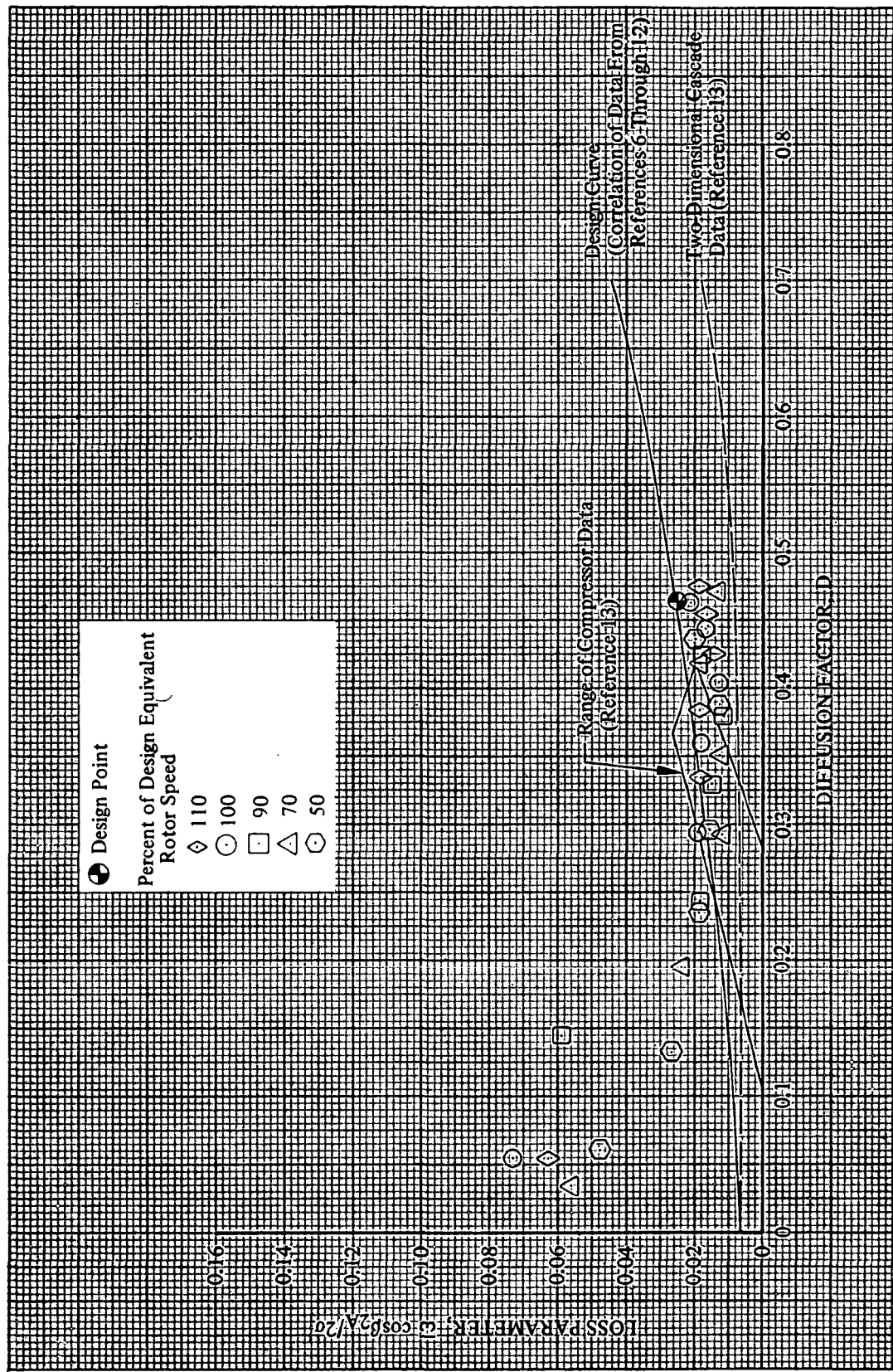


Figure 18b. Tandem Stator B Loss Parameter vs Diffusion Factor, 50% Span

DF 91061

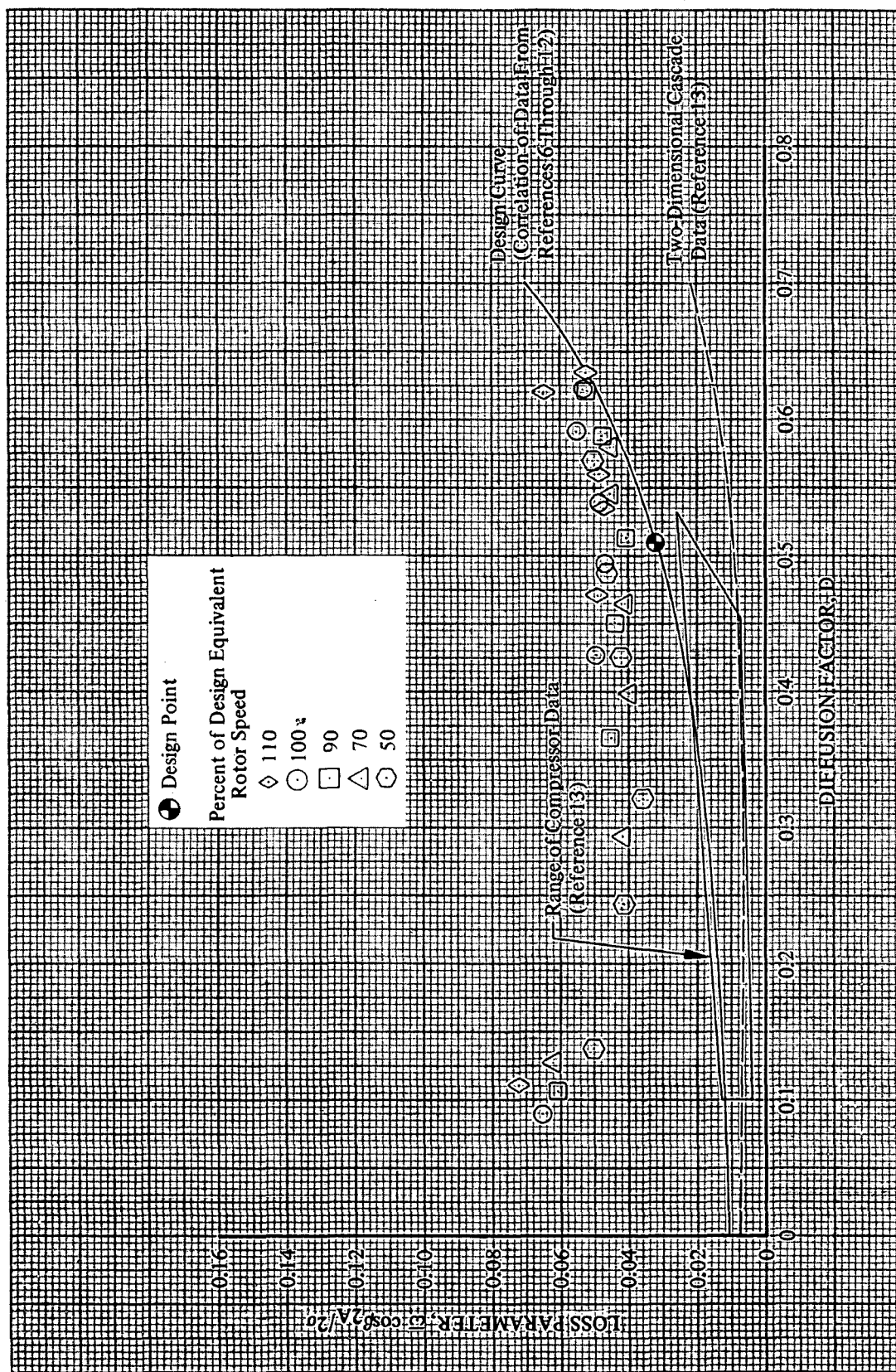


Figure 18c. Tandem Stator B Loss Parameter vs Diffusion Factor, 90% Span from Tip

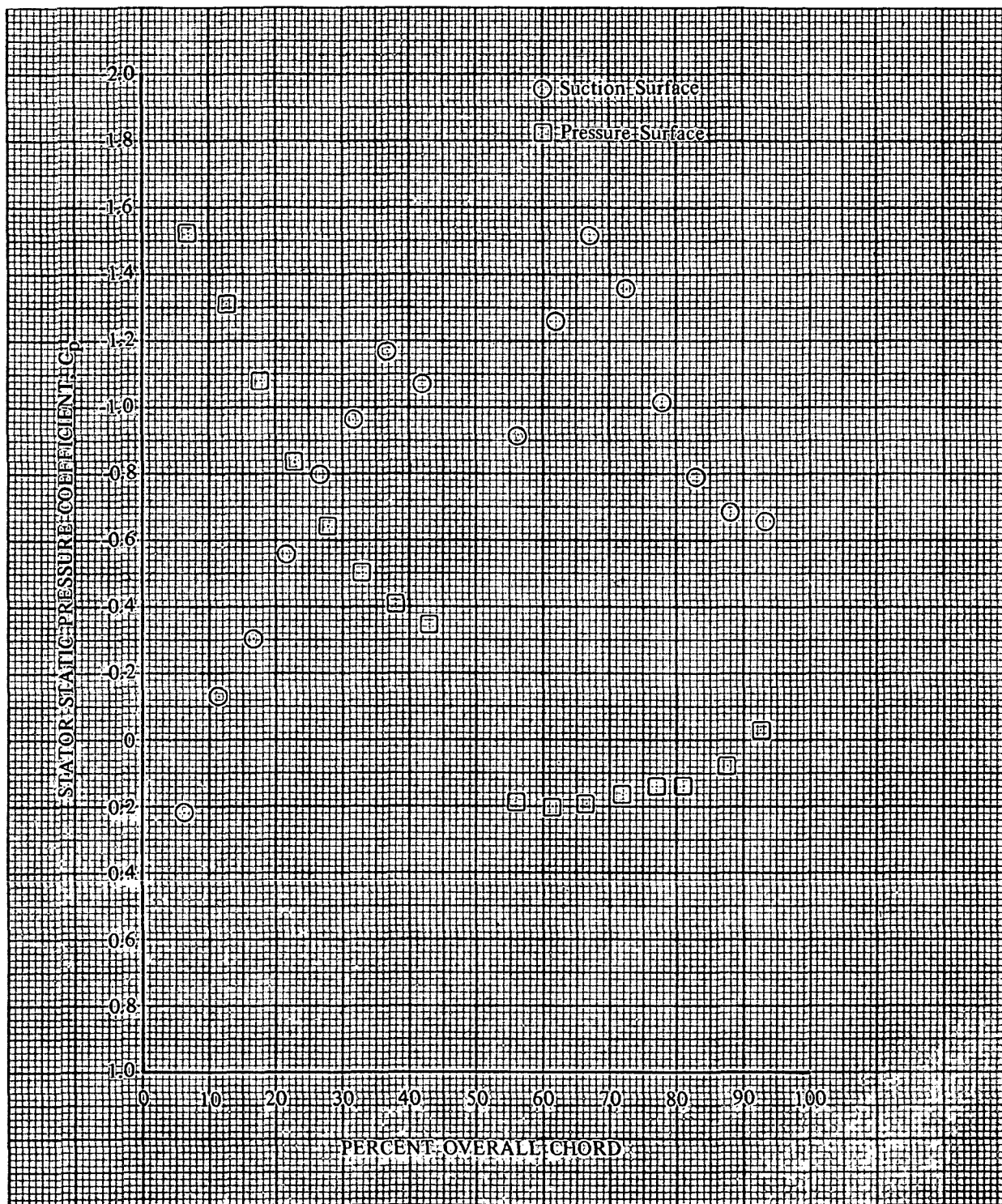


Figure 19a. Tandem Stator B Midspan Static Pressure Coefficient at Design Equivalent Rotor Speed, Equivalent Weight Flow = 120.83 lb/sec

DF 91063

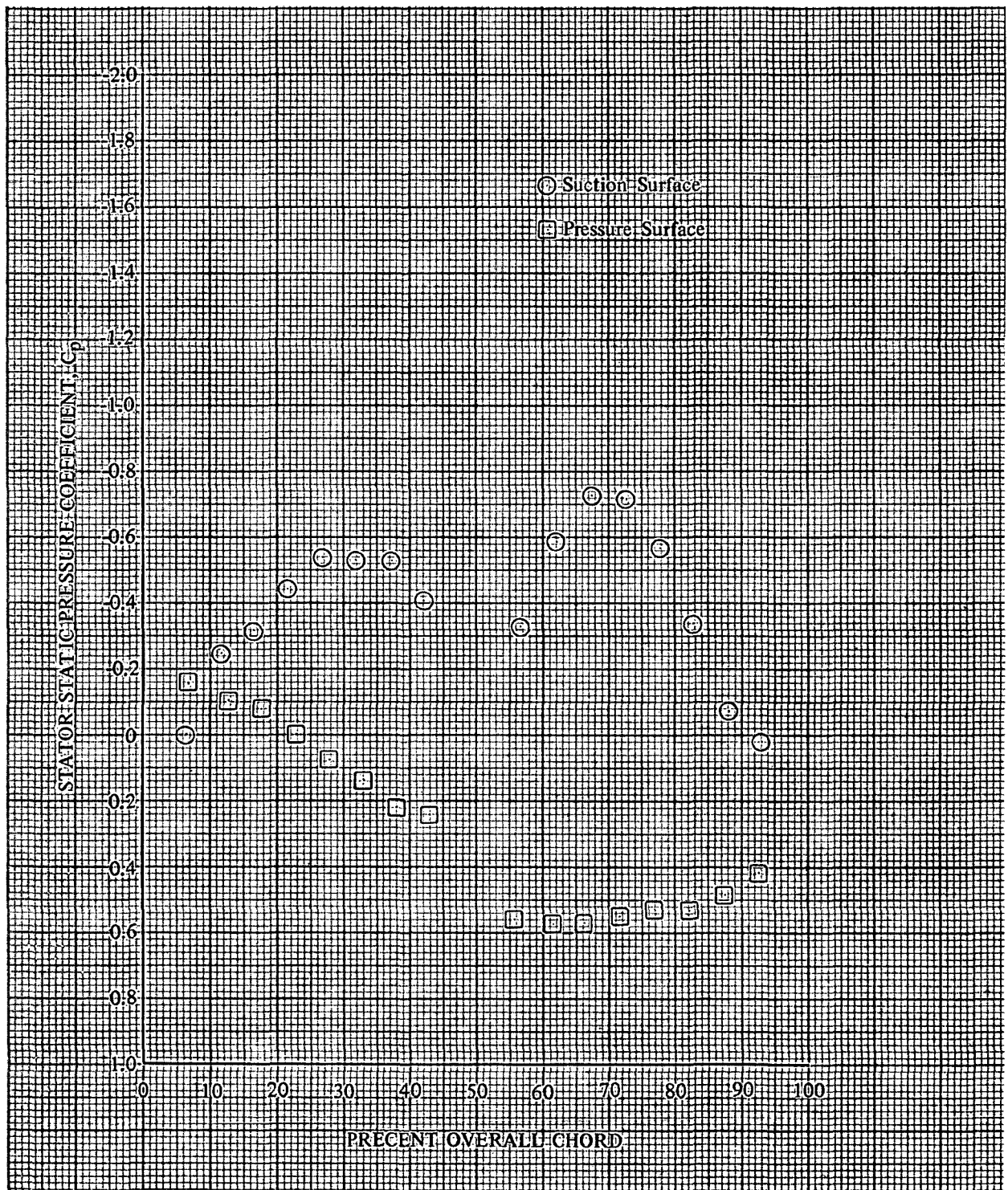


Figure 19b. Tandem Stator B Midspan Static Pressure Coefficient at Design Equivalent Rotor Speed, Equivalent Weight Flow = 114.12 lb/sec

DF 91064

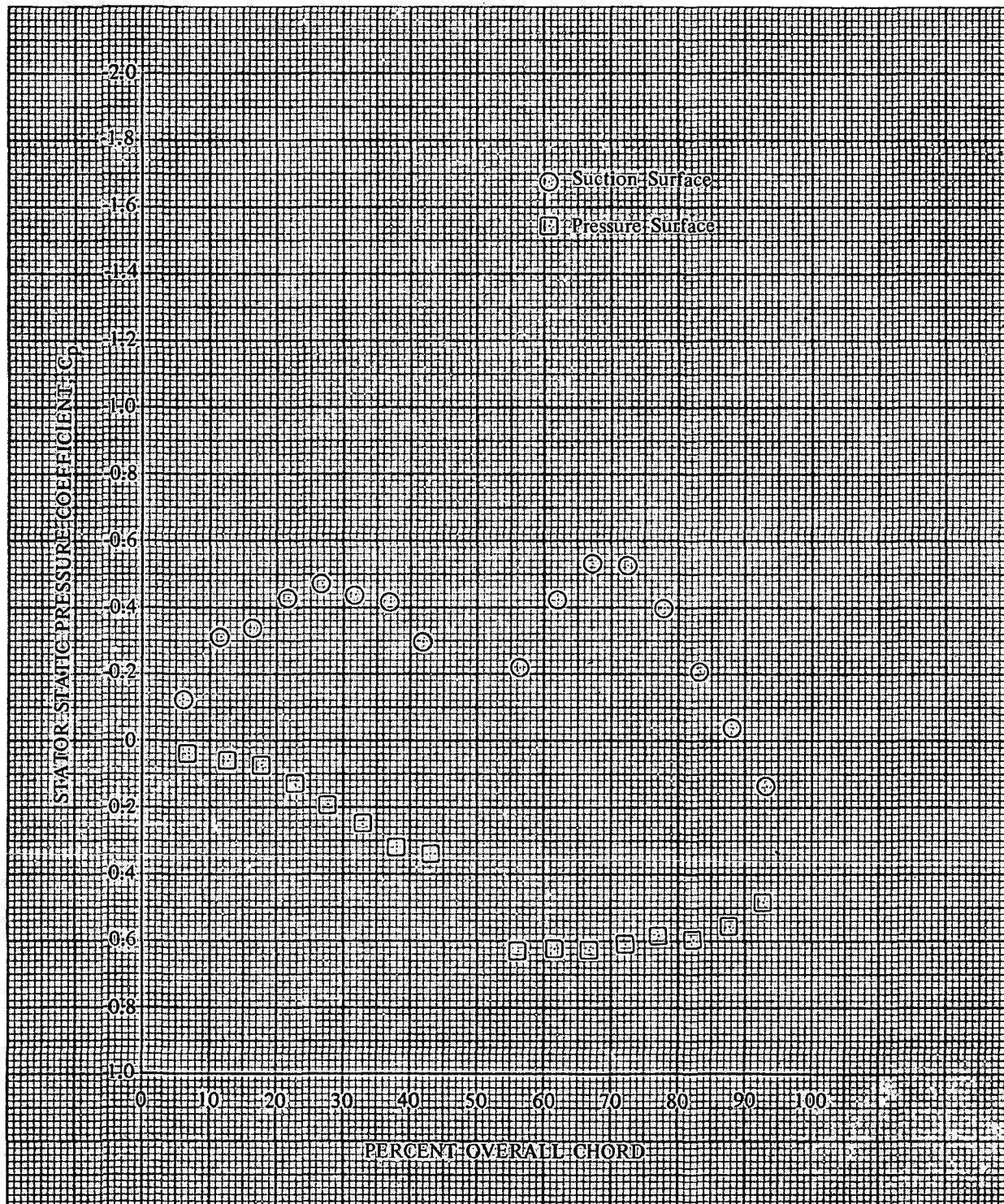


Figure 19c. Tandem Stator B Midspan Static Pressure Coefficient at Design Equivalent Rotor Speed, Equivalent Weight Flow = 108.33 lb/sec

DF 91065

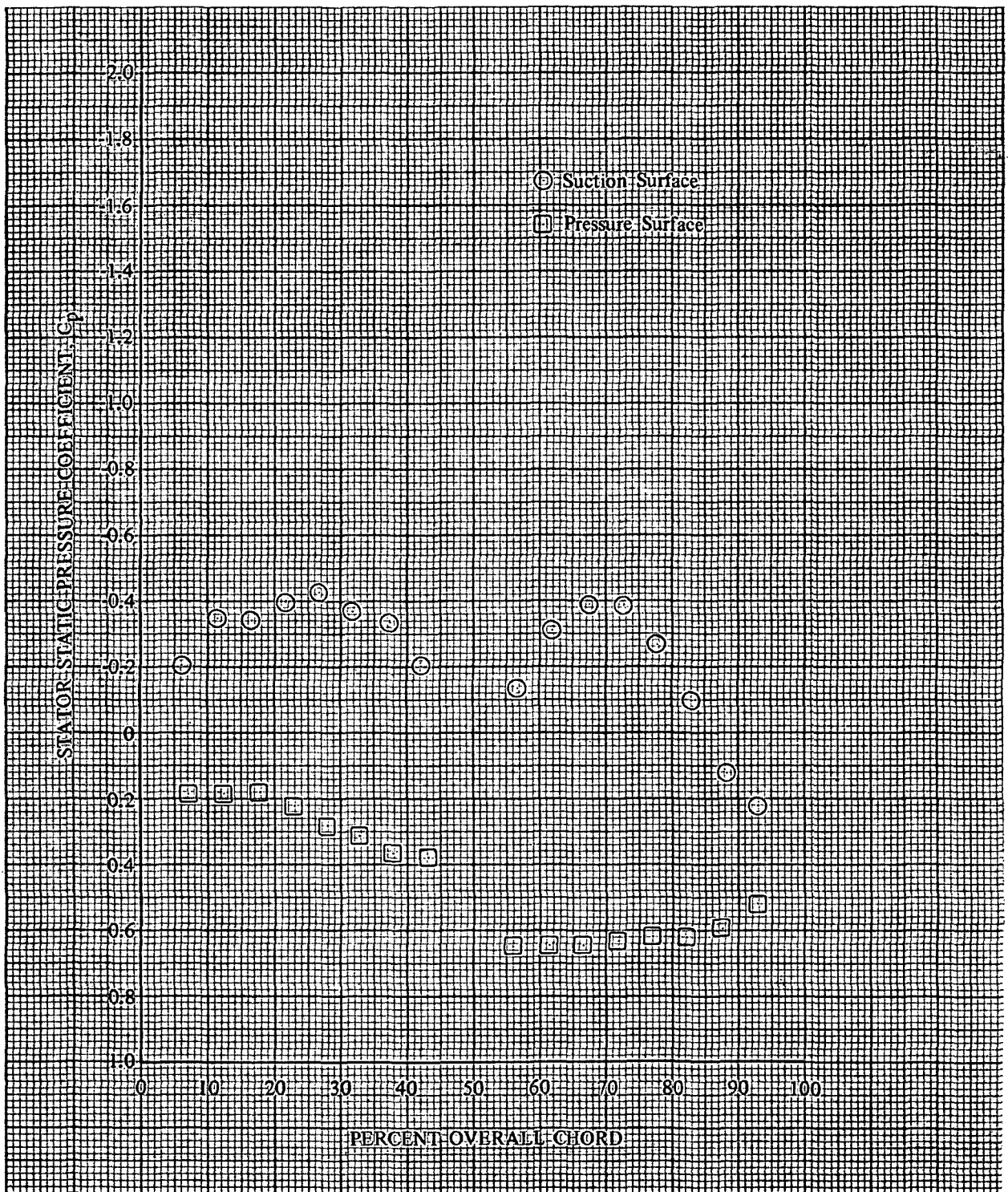


Figure 19d. Tandem Stator B Midspan Static Pressure Coefficient at Design Equivalent Rotor Speed, Equivalent Weight Flow = 102.98 lb/sec

DF 91066

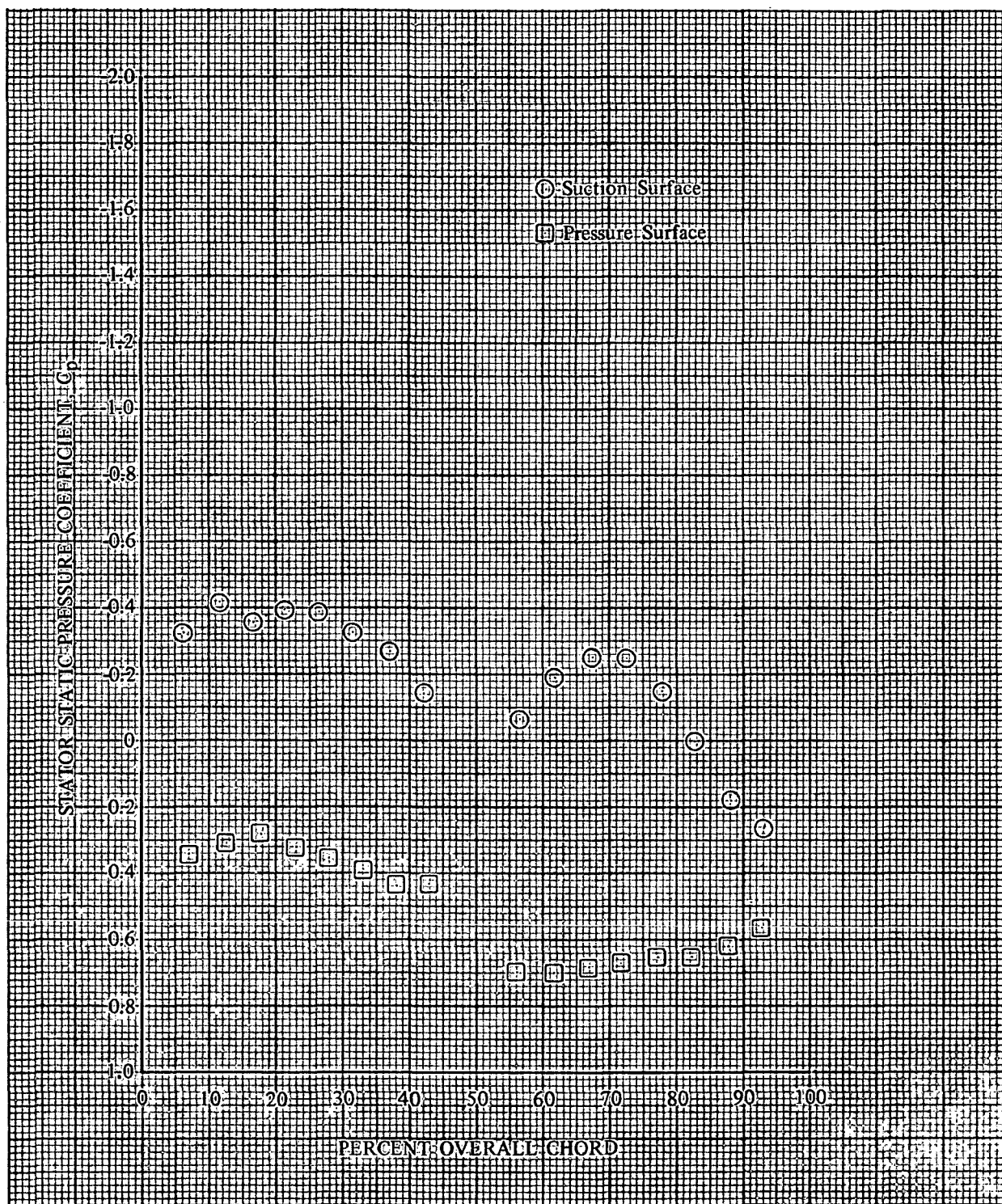


Figure 19e. Tandem Stator B Midspan Static Pressure Coefficient at Design Equivalent Rotor Speed, Equivalent Weight Flow = 98.54 lb/sec

DF 91067

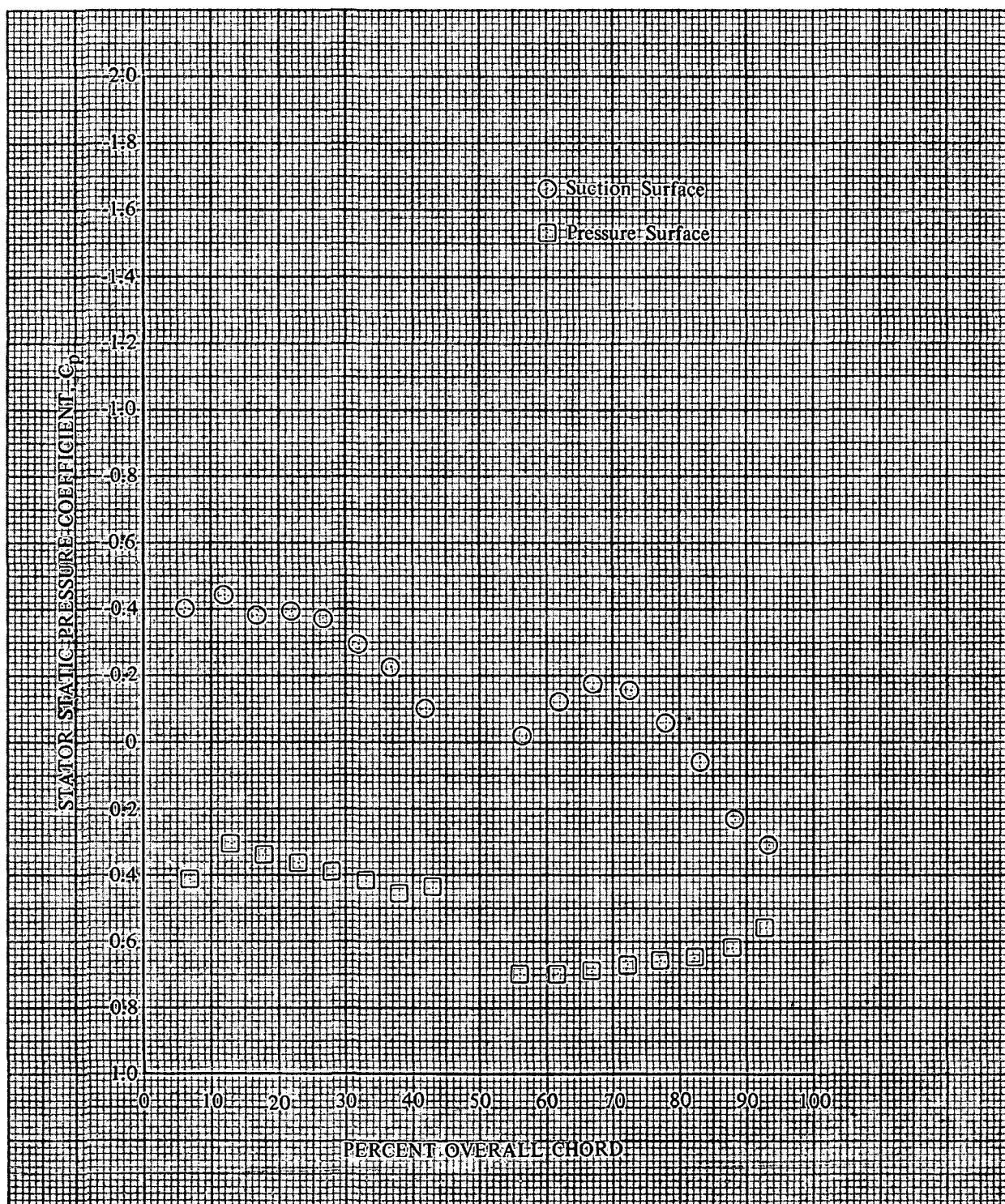


Figure 19f. Tandem Stator B Midspan Static Pressure Coefficient at Design Equivalent Rotor Speed, Equivalent Weight Flow = 94.51 lb/sec

DF 91068

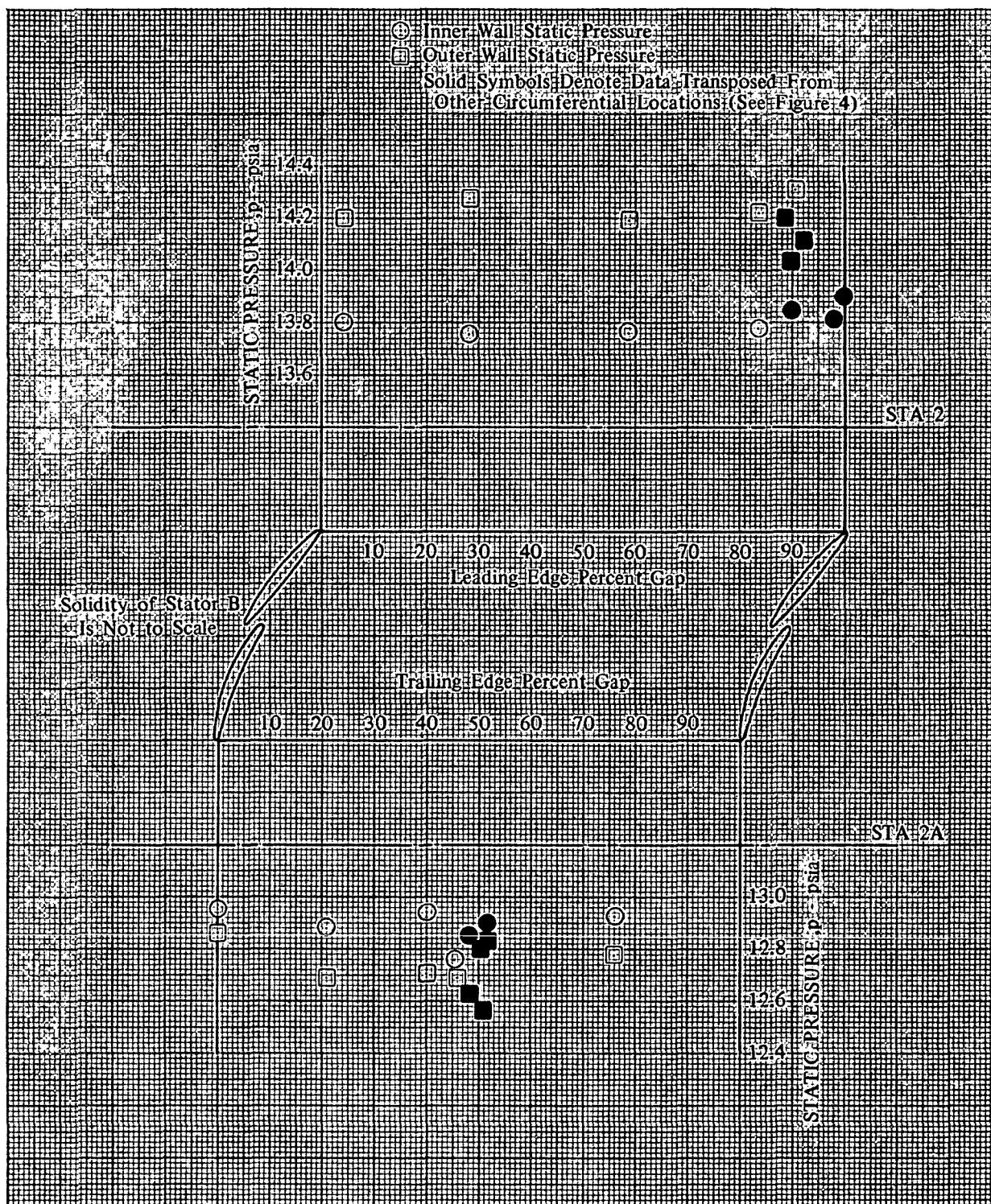


Figure 20a. Wall Static Pressure Distributions
Upstream and Downstream of Stator B
at Design Equivalent Rotor Speed,
Equivalent Weight Flow = 120.83 lb/sec

DF91069

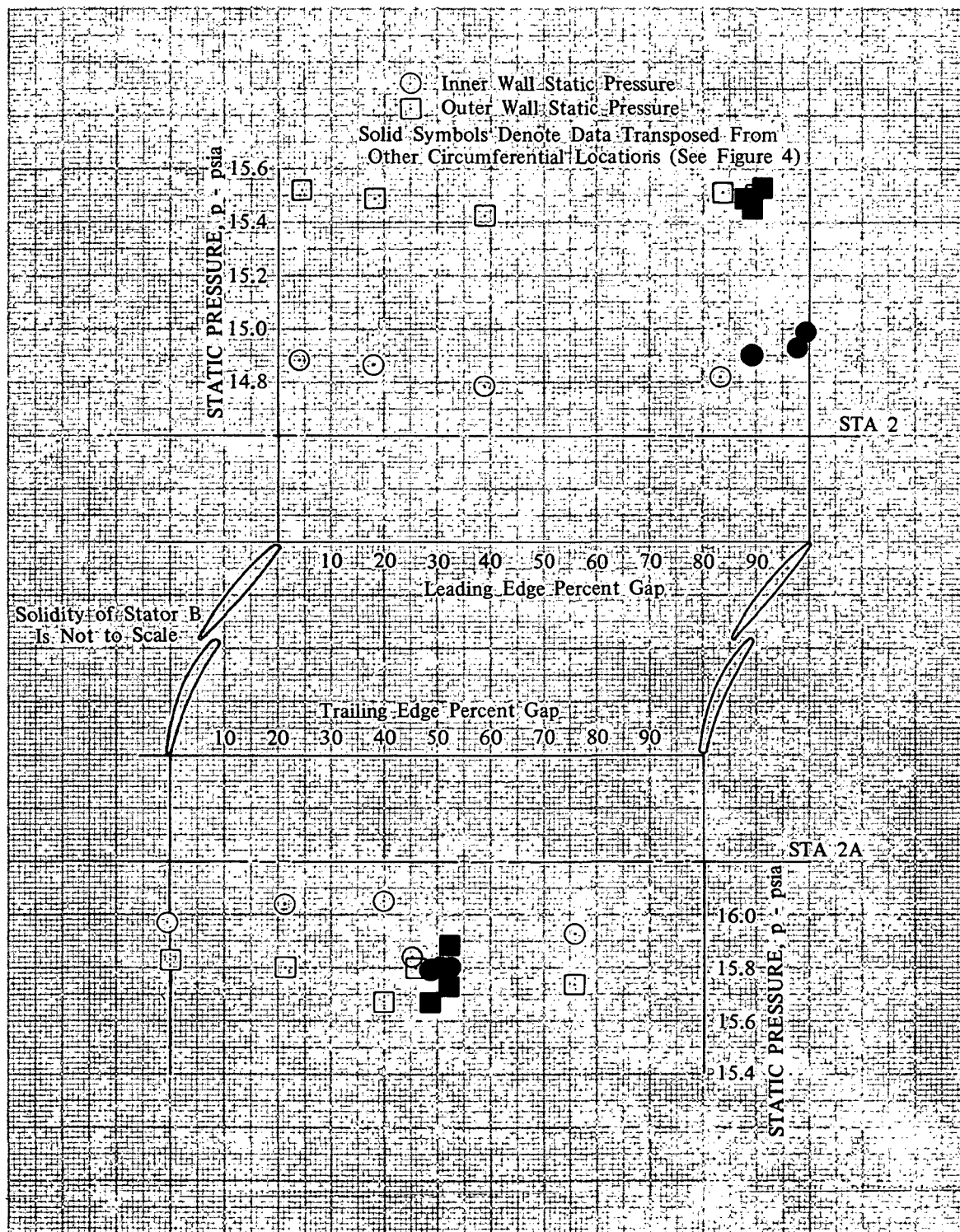


Figure 20b. Wall Static Pressure Distributions
Upstream and Downstream of Stator B
at Design Equivalent Rotor Speed,
Equivalent Weight Flow = 114.12 lb/sec

DF 91070

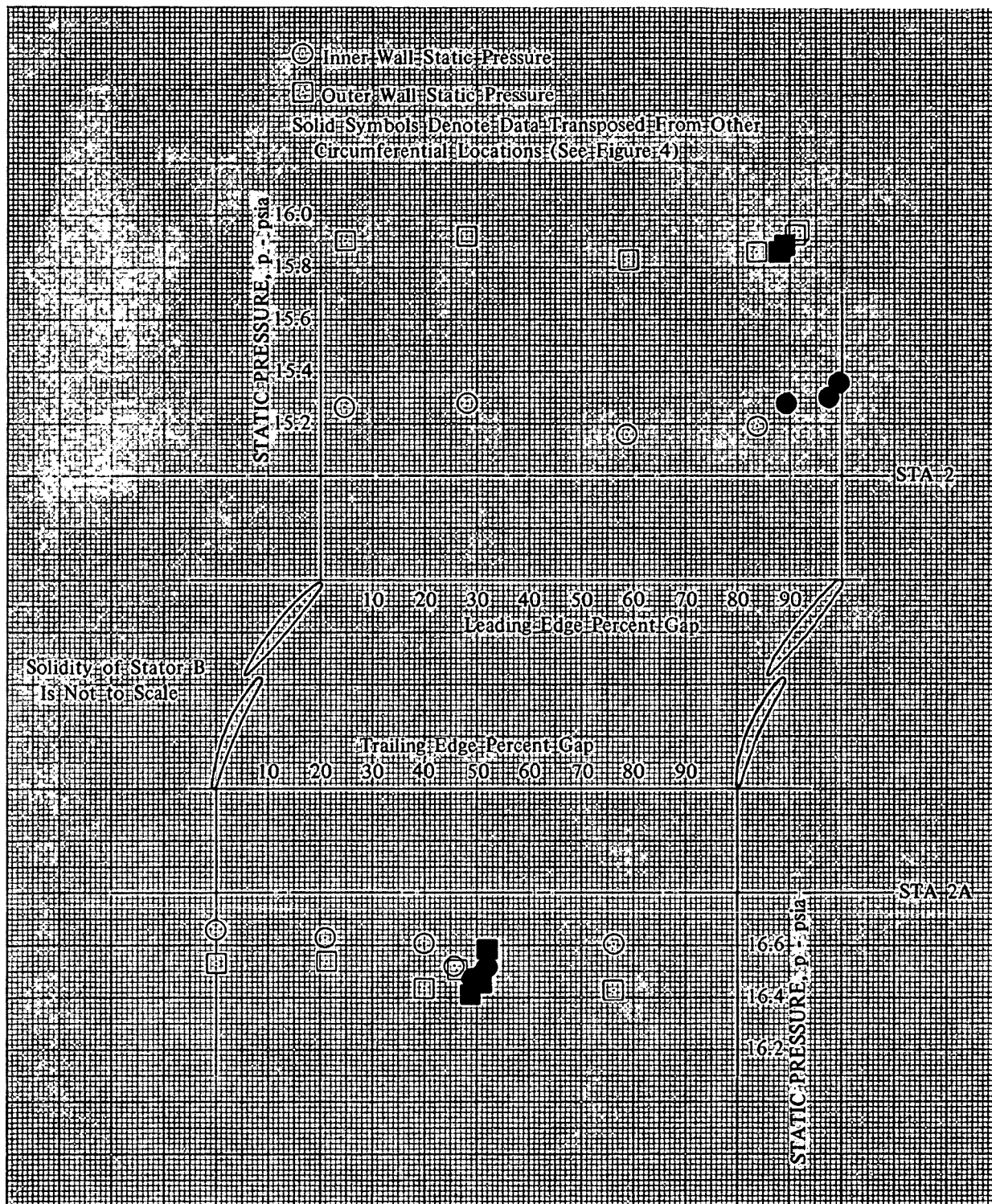


Figure 20c. Wall Static Pressure Distributions
Upstream and Downstream of Stator B
at Design Equivalent Rotor Speed,
Equivalent Weight Flow = 108.33 lb/sec

DF 91071

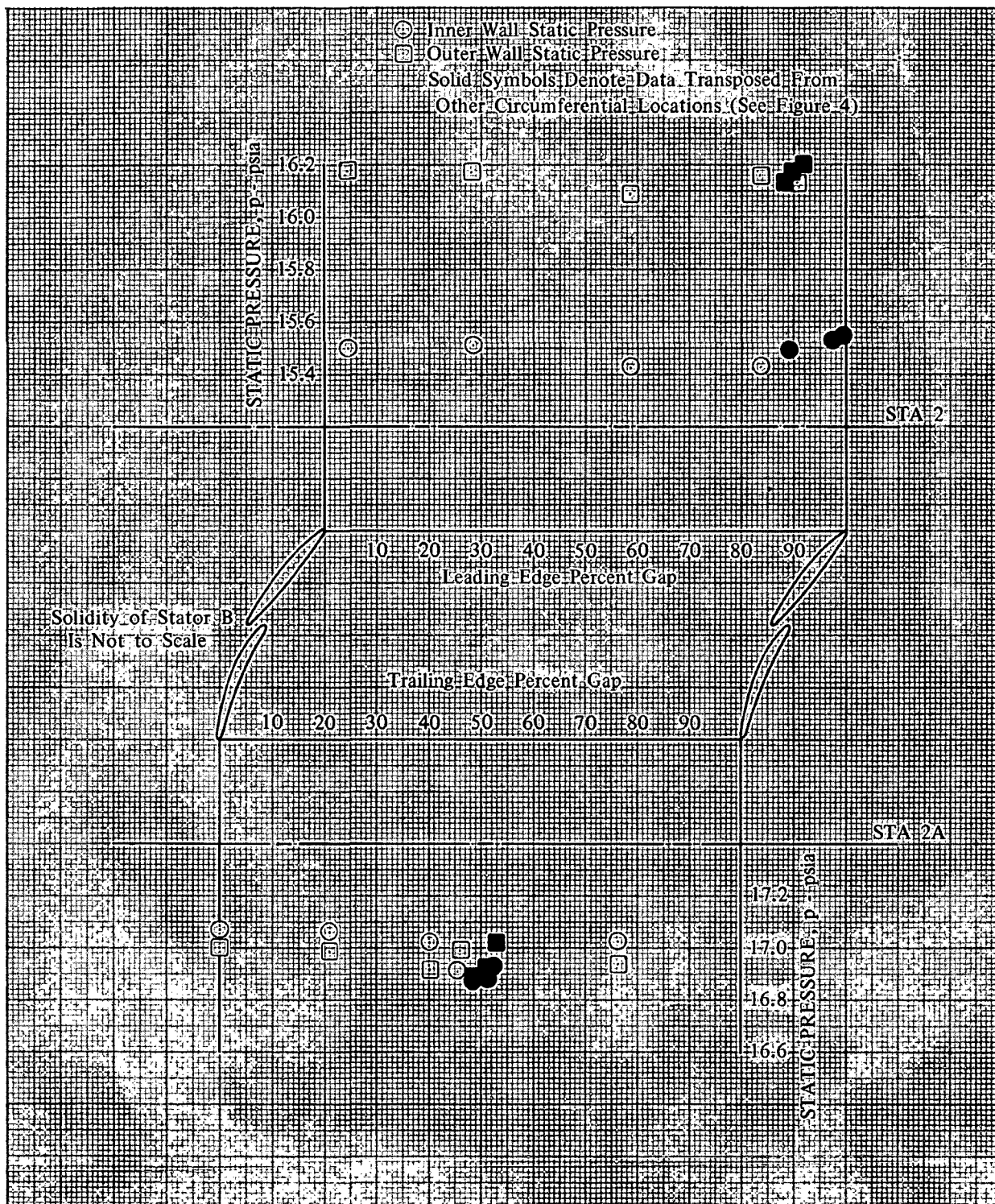


Figure 20d. Wall Static Pressure Distributions Upstream and Downstream of Stator B at Design Equivalent Rotor Speed, Equivalent Weight Flow = 102.98 lb/sec

DF 91072

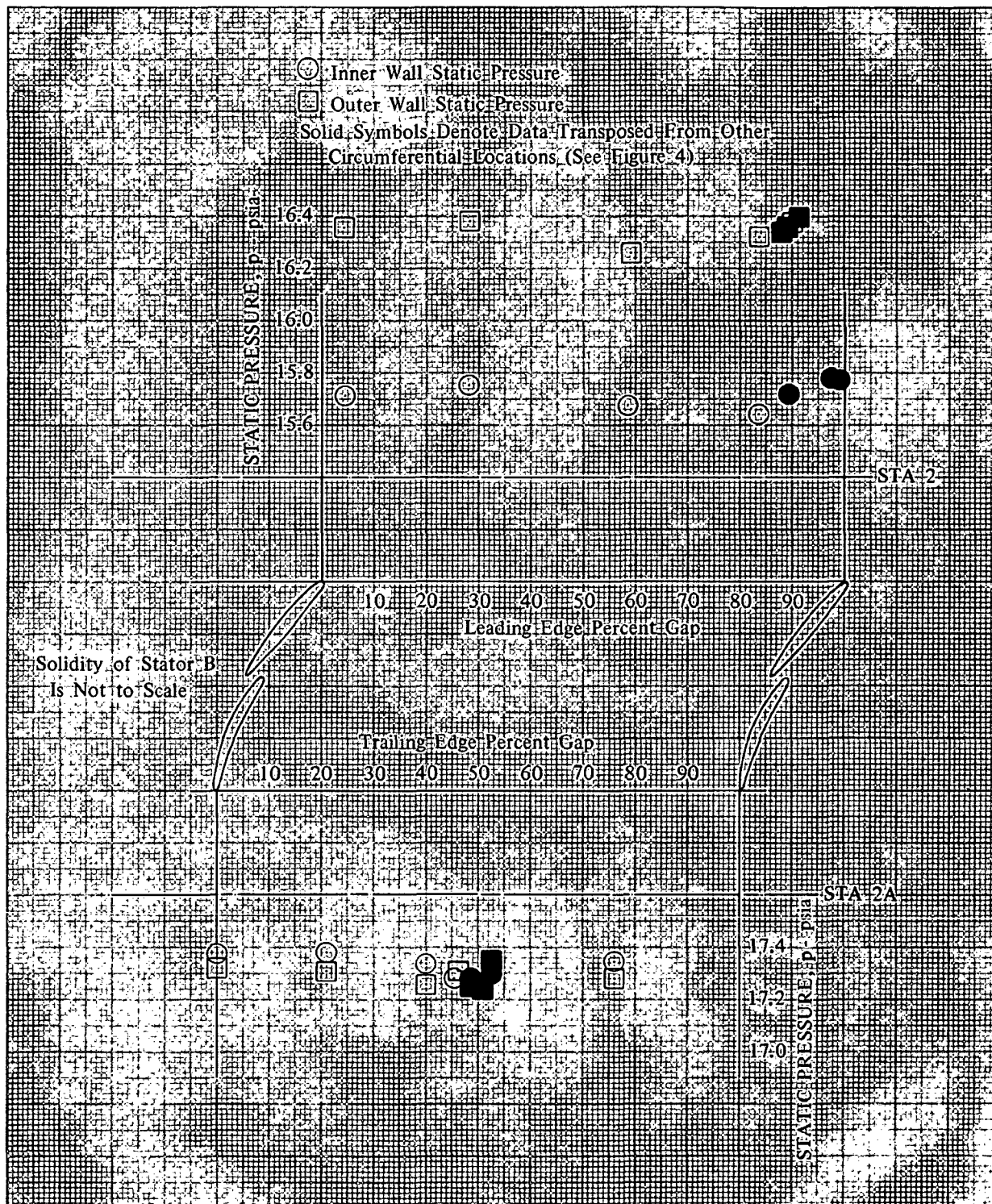


Figure 20e. Wall Static Pressure Distributions
Upstream and Downstream of
Stator B at Design Equivalent Rotor
Speed, Equivalent Weight Flow = 98.54 lb/sec

DF 91073

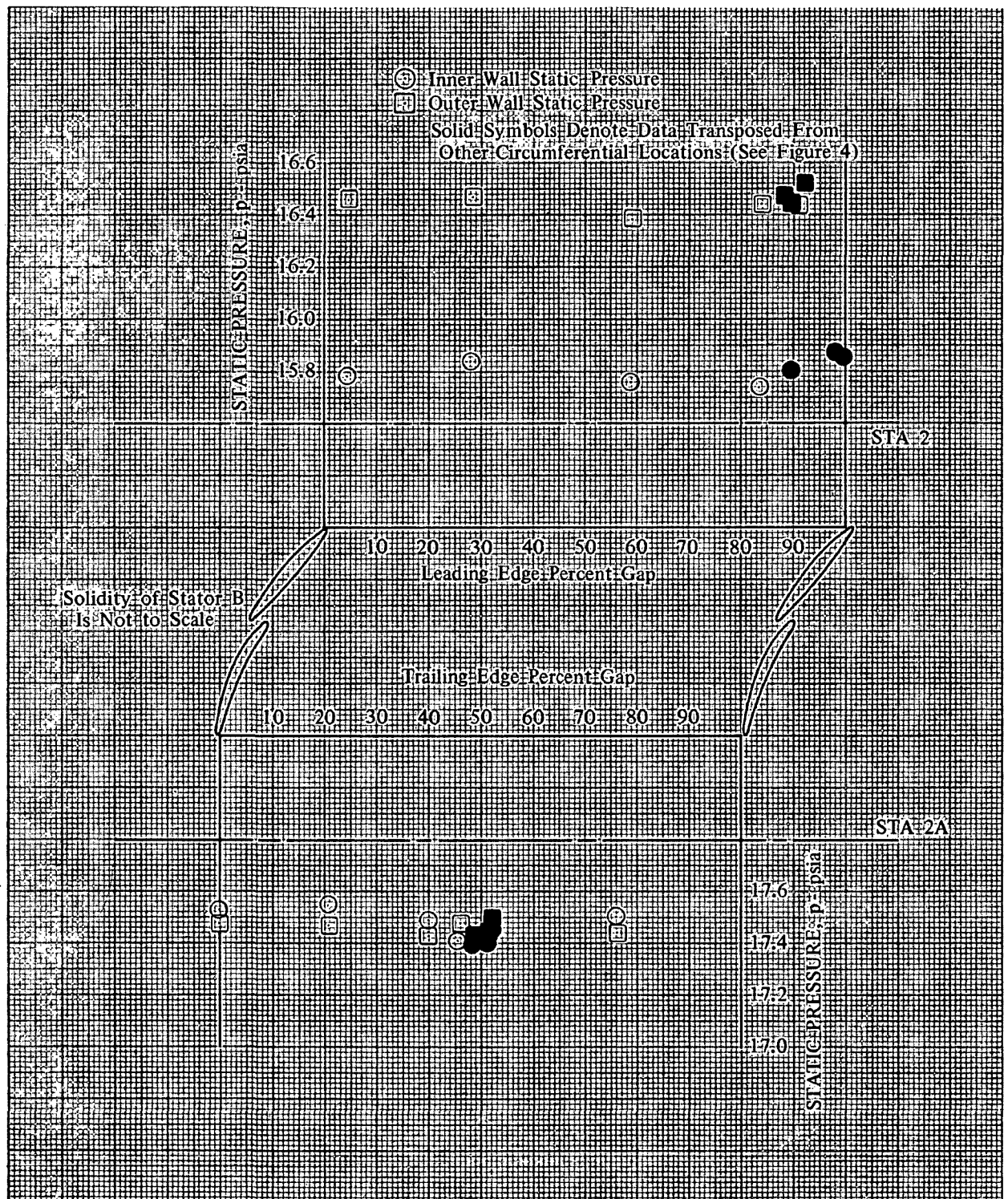


Figure 20f. Wall Static Pressure Distributions
Upstream and Downstream of
Stator B at Design Equivalent Rotor
Speed, Equivalent Weight Flow = 94.51 lb/sec

DF 91074

APPENDIX A

TABULATED OVERALL AND BLADE ELEMENT PERFORMANCE DATA

Rotor C and Stage C overall performance is tabulated in table A-1. Rotor C and Stator B blade element performance calculated from data at the instrumentation stations and from data that have been translated to the rotor and stator leading and trailing edges is tabulated in table A-2 for the near-design flowrate of 108.33 lb/sec. Due to the small differences between translated and untranslated values in table A-2, only the translated data is tabulated in table A-3 for the remaining compressor test points.

Table A-1 Overall Performance - Stage C

Corrected Weight Flow lb/sec	Rotor			Stage		
	\bar{P}_2/\bar{P}_1	η_{ad}	η_p	\bar{P}_{2A}/\bar{P}_1	η_{ad}	η_p
100% Design Equivalent Rotor Speed						
94.51	1.3305	0.8893	0.8937	1.3123	0.8438	0.8497
98.54	1.3273	0.9053	0.9090	1.3116	0.8648	0.8699
102.98	1.3148	0.8841	0.8885	1.3016	0.8493	0.8548
108.33	1.3076	0.9179	0.9210	1.2877	0.8627	0.8675
114.12	1.2903	0.9179	0.9208	1.2664	0.8474	0.8524
120.83	1.2078	0.7886	0.7942	1.1493	0.5765	0.5848
50% Design Equivalent Rotor Speed						
45.81	1.0738	0.8102	0.8121	1.0711	0.7808	0.7830
50.04	1.0712	0.8447	0.8462	1.0683	0.8107	0.8125
55.83	1.0676	0.9415	0.9421	1.0637	0.8875	0.8885
59.70	1.0633	0.8658	0.8670	1.0590	0.8079	0.8095
64.69	1.0577	0.9133	0.9140	1.0504	0.7984	0.7998
68.43	1.0524	0.8964	0.8971	1.0422	0.7243	0.7259
70% Design Equivalent Rotor Speed						
63.33	1.1526	0.8970	0.8991	1.1442	0.8490	0.8519
68.37	1.1483	0.8911	0.8933	1.1396	0.8403	0.8432
73.55	1.1414	0.9275	0.9289	1.1322	0.8687	0.8710
79.76	1.1337	0.9181	0.9195	1.1241	0.8540	0.8564
86.79	1.1215	0.9186	0.9199	1.1080	0.8193	0.8219
93.06	1.1024	0.8187	0.8211	1.0808	0.6643	0.6680
90% Design Equivalent Rotor Speed						
83.77	1.2612	0.8773	0.8813	1.2471	0.8325	0.8377
88.84	1.2567	0.8943	0.8976	1.2434	0.8505	0.8550
95.04	1.2468	0.9042	0.9071	1.2331	0.8566	0.8608
100.49	1.2394	0.9153	0.9179	1.2213	0.8500	0.8542
107.07	1.2179	0.8959	0.8988	1.1962	0.8113	0.8161
112.52	1.1722	0.8423	0.8459	1.1275	0.6322	0.6384
110% Design Equivalent Rotor Speed						
101.79	1.4110	0.8655	0.8719	1.3919	0.8288	0.8366
107.10	1.4054	0.8789	0.8846	1.3858	0.8402	0.8474
113.12	1.3963	0.8957	0.9005	1.3729	0.8474	0.8541
118.34	1.3865	0.8999	0.9044	1.3618	0.8473	0.8538
122.43	1.3598	0.8965	0.9009	1.3293	0.8268	0.8336
125.30	1.2495	0.7589	0.7664	1.1688	0.5257	0.5361

NOMENCLATURE USED FOR BLADE ELEMENT DATA TABULATION

Exit Percent Span From Tip	PCT SPAN
Exit Diameter	DIA
Absolute Flow Angle	BETA
Relative Flow Angle	BETA (PR)
Absolute Velocity	V
Axial Velocity	VZ
Absolute Tangential Velocity	V - THETA
Relative Velocity	V (PR)
Relative Tangential Velocity	V - THETA PR
Rotor Speed	U
Absolute Mach No.	M
Relative Mach No.	M (PR)
Relative Turning Angle	TURN (PR)
Loss Coefficient ($\bar{\omega}$)	UUBAR
Loss Parameter	LOSS PARA
Diffusion Factor	DFAC
Polytropic Efficiency	EFFP
Adiabatic Efficiency	EFF
Incidence	INCID
Deviation	DEVM
Total Pressure	P
Total Temperature	T
Loss Coefficient Based on P2FS ($\bar{\omega}_{fs}$)	UUBAR FS
Stator Exit Average Freestream Total Pressure From Wake Rakes	P2FS
Loss Parameter Based on UUBAR FS	LOSS PARA FS

Note: Where applicable the appropriate instrumentation station is noted.

Table A-2. Blade Element Performance

Stage C Rotor C - Stator B
CALCULATIONS USING UNTRANSLATED VALUES

PERCENT EQUIVALENT ROTOR SPEED = 99.59 EQUIVALENT ROTOR SPEED = 4192.73 Equivalent WEIGHT FLOW = 108.33

INLET		PCT SPAN	96.49	91.45	86.35	70.89	49.99	29.06	13.61	8.54	3.50	PCT SPAN
STATION 0	DIA	33.144	33.566	33.993	35.288	37.039	38.792	40.086	40.511	40.933	DIA	
	BETA 0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 0	
STATION 1	BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1	
	V 0	447.59	447.59	447.59	447.59	447.59	447.59	447.59	447.59	447.59	V 0	
	V 1	457.31	474.87	478.72	483.98	482.46	474.68	464.19	443.70	371.43	V 1	
	VZ 0	447.59	447.59	447.59	447.58	447.55	447.51	447.47	447.46	447.44	VZ 0	
	VZ 1	457.30	474.87	478.72	483.96	482.32	474.34	463.67	443.14	370.90	VZ 1	
	V-THETA 0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 0	
	V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1	
	M 0	0.4075	0.4075	0.4075	0.4075	0.4075	0.4075	0.4075	0.4075	0.4075	M 0	
	M 1	0.4167	0.4333	0.4369	0.4419	0.4405	0.4331	0.4232	0.4039	0.3365	M 1	
	TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN	
	UUBAR	0.0938	0.0126	0.0	0.0	0.0	0.0	0.0202	0.1045	0.3961	UUBAR	
	DFAC	-0.022	-0.061	-0.070	-0.081	-0.078	-0.061	-0.037	0.009	0.170	DFAC	
	EFFP	0.3340	0.9149	0.9999	1.0001	0.9999	1.0000	0.8013	-0.2149	-4.6546	EFFP	
	INCID	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	INCID	
	DEVM	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	DEVM	
	P 0	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	P 0	
	P 1	14.545	14.674	14.694	14.694	14.694	14.694	14.662	14.528	14.065	P 1	
	T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0	
	T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1	
ROTOR C		PCT SPAN	95.01	90.00	84.99	69.99	49.99	29.99	14.98	9.99	4.98	PCT SPAN
STATION 1	DIA	33.233	33.617	34.001	35.152	36.686	38.220	39.371	39.754	40.138	DIA	
	BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1	
STATION 2	BETA 2	49.560	47.020	43.000	40.190	39.430	38.920	39.980	44.750	50.880	BETA 2	
	BETA (PR) 1	52.977	52.284	52.411	53.142	54.556	56.241	57.696	59.123	61.651	BETA (PR) 1	
	BETA (PR) 2	23.219	25.448	24.531	24.770	29.089	32.521	35.357	39.269	45.030	BETA (PR) 2	
	V 1	457.31	474.87	478.72	483.98	482.46	474.68	464.19	443.70	371.43	V 1	
	V 2	594.95	582.38	612.37	644.58	630.59	622.58	608.16	567.00	522.44	V 2	
	VZ 1	457.30	474.87	478.72	483.96	482.32	474.34	463.67	443.14	370.90	VZ 1	
	VZ 2	379.43	397.04	447.85	492.33	486.82	483.86	465.27	402.05	329.18	VZ 2	
	V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1	
	V-THETA 2	445.20	426.07	417.63	415.90	400.31	390.70	390.13	398.56	404.77	V-THETA 2	
	V (PR) 1	759.5	776.3	784.8	806.8	831.8	853.8	867.9	863.8	835.9	V (PR) 1	
	V (PR) 2	412.9	439.7	492.3	542.3	557.5	574.6	571.5	520.3	466.6	V (PR) 2	
	VTHETA PR1	-606.3	-614.1	-621.9	-645.6	-677.6	-709.7	-733.3	-741.1	-748.8	VTHETA PR1	
	VTHETA PR2	-162.8	-188.9	-204.4	-227.2	-270.8	-308.5	-330.1	-328.7	-329.5	VTHETA PR2	
	U 1	606.34	614.06	621.88	645.57	677.60	709.67	733.34	741.12	748.84	U 1	
	U 2	607.97	615.00	622.02	643.08	671.14	699.20	720.26	727.27	734.29	U 2	
	M 1	0.4167	0.4333	0.4369	0.4419	0.4405	0.4331	0.4232	0.4039	0.3365	M 1	
	M 2	0.5152	0.5134	0.5417	0.5724	0.5592	0.5517	0.5372	0.4983	0.4571	M 2	
	M (PR) 1	0.6920	0.7083	0.7163	0.7367	0.7594	0.7790	0.7912	0.7863	0.7572	M (PR) 1	
	M (PR) 2	0.3636	0.3876	0.4355	0.4816	0.4943	0.5092	0.5049	0.4572	0.4082	M (PR) 2	
	TURN (PR)	29.757	26.836	27.880	28.376	25.481	23.748	22.384	19.908	18.687	TURN (PR)	
	UUBAR	0.2046	0.2002	0.1234	0.0471	0.0437	0.0467	0.0814	0.1549	0.1673	UUBAR	
	LOSS PARA	0.0543	0.0529	0.0333	0.0132	0.0123	0.0133	0.0232	0.0424	0.0424	LOSS PARA	
	DFAC	0.6258	0.5942	0.5304	0.4861	0.4841	0.4802	0.4972	0.5594	0.6137	DFAC	
	EFFP	0.7817	0.7687	0.8494	0.9703	0.9727	0.9889	0.9325	0.8481	0.8578	EFFP	
	EFF	0.7744	0.7612	0.8441	0.9691	0.9717	0.9884	0.9298	0.8424	0.8524	EFF	
	INCID	1.135	0.006	-0.279	-0.913	-1.501	-1.807	-1.727	-0.731	3.022	INCID	
	DEVM	15.470	16.150	13.612	9.067	8.402	7.658	7.805	11.133	16.149	DEVM	
	P 1	14.545	14.674	14.694	14.694	14.694	14.694	14.662	14.528	14.065	P 1	
	P 2	18.375	18.355	18.750	19.325	19.355	19.415	19.285	18.795	18.315	P 2	
	T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1	
	T 2	564.960	563.700	563.020	562.280	562.420	562.180	564.140	565.710	566.380	T 2	
STATOR B		PCT SPAN	95.04	90.11	85.15	70.14	50.00	29.85	14.85	9.87	4.94	PCT SPAN
STATION 2	DIA	33.204	33.556	33.910	34.982	36.420	37.859	38.930	39.285	39.637	DIA	
	BETA 2	49.560	47.020	43.000	40.190	39.430	38.920	39.980	44.750	50.880	BETA 2	
STATION 2A	BETA 2A	1.340	2.030	3.970	5.800	5.100	5.030	5.310	5.270	5.220	BETA 2A	
	V 2	584.95	582.38	612.37	644.58	630.59	622.58	608.16	567.00	522.44	V 2	
	V 2A	414.78	429.58	447.29	504.53	532.23	540.37	529.74	505.12	475.03	V 2A	
	VZ 2	379.43	397.04	447.85	492.33	486.82	483.86	465.27	402.05	329.18	VZ 2	
	VZ 2A	414.67	429.31	446.22	501.91	529.98	537.98	527.01	502.51	472.56	VZ 2A	
	V-THETA 2	445.20	426.07	417.63	415.90	400.31	390.70	390.13	398.56	404.77	V-THETA 2	
	V-THETA 2A	9.70	15.22	30.97	50.98	47.30	47.35	48.98	46.35	43.17	V-THETA 2A	
	M 2	0.5152	0.5134	0.5417	0.5724	0.5592	0.5517	0.5372	0.4983	0.4571	M 2	
	M 2A	0.3606	0.3742	0.3904	0.4425	0.4678	0.4753	0.4647	0.4416	0.4141	M 2A	
	TURN (PR)	48.220	44.990	39.029	34.384	34.307	33.842	34.598	39.397	45.569	TURN (PR)	
	UUBAR	0.0848	0.0420	0.1105	0.0927	0.0181	0.0240	0.0614	0.0078	-0.0654	UUBAR	
	LOSS PARA	0.0274	0.0137	0.0363	0.0312	0.0063	0.0088	0.0231	0.0030	-0.0252	LOSS PARA	
	DFAC	0.5320	0.4929	0.4778	0.4096	0.3540	0.3354	0.3426	0.3483	0.3602	DFAC	
	EFFP	0.8449	0.9165	0.7863	0.7875	0.9444	0.9139	0.7729	0.9656	1.3446	EFFP	
	INCID	2.589	0.819	-2.471	-3.486	-2.824	-3.484	-3.401	0.808	6.330	INCID	
	DEVM	14.371	14.884	16.704	18.134	17.219	17.735	18.816	19.073	19.366	DEVM	
	P 2	18.375	18.355	18.750	19.325	19.355	19.415	19.285	18.795	18.315	P 2	
	P 2A	18.117	18.228	18.375	18.968	19.288	19.328	19.074	18.772	18.475	P 2A	
	T 2	564.960	563.700	563.020	562.280	562.420	562.180	564.140	565.710	566.380	T 2	
	T 2A	564.960	563.700	563.020	562.280	562.420	562.180	564.140	565.710	566.380	T 2A	
	UUBAR FS	0.1478	0.1444	0.1118	0.0727	0.0518	0.0506	0.0586	0.0892	0.1308	UUBAR FS	
	P2 FS	18.600	18.715	18.755	19.242	19.487	19.517	19.312	19.057	18.867	P2 FS	
	LOSS PARA FS	0.0477	0.0469	0.0367	0.0744	0.0180	0.0185	0.0258	0.0343	0.0504	LOSS PARA FS	

Table A-2. Blade Element Performance (Concluded)

Stage C Rotor C - Stator B											
CALCULATIONS USING TRANSLATED VALUES											
PERCENT EQUIVALENT ROTOR SPEED = 99.59 EQUIVALENT ROTOR SPEED = 4192.73 EQUIVALENT WEIGHT FLOW = 108.33											
INLET	PCT SPAN	96.61	91.52	86.39	70.81	49.79	28.83	13.41	8.35	3.34	PCT SPAN
DIA	33.138	33.570	34.006	35.328	37.113	38.892	40.202	40.631	41.056	41.056	DIA
BETA 0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 0
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1
V 0	447.60	447.60	447.60	447.60	447.60	447.60	447.60	447.60	447.60	447.60	V 0
V 1	440.72	457.36	461.00	466.99	466.48	458.87	447.37	427.22	357.71	357.71	V 1
VZ 0	447.60	447.60	447.60	447.59	447.56	447.52	447.48	447.46	447.44	447.44	VZ 0
VZ 1	440.72	457.36	461.00	466.98	466.44	458.79	447.25	427.09	357.58	357.58	VZ 1
V-THETA 0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 0
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1
M 0	0.4075	0.4075	0.4075	0.4075	0.4075	0.4075	0.4075	0.4075	0.4075	0.4075	M 0
M 1	0.4011	0.4167	0.4202	0.4258	0.4253	0.4182	0.4073	0.3884	0.3238	0.3238	M 1
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR	0.0938	0.0126	0.0	0.0	0.0	0.0	0.0202	0.1045	0.3961	0.3961	UUBAR
DFAC	0.015	-0.022	-0.030	-0.043	-0.042	-0.025	0.001	0.046	0.201	0.201	DFAC
EFFP	-0.5335	0.7902	0.9998	0.9999	1.0001	1.0002	-0.0579	-10.0256	-21.0030	-21.0030	EFFP
INCID	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	INCID
DEVM	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	DEVM
P 0	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	P 0
P 1	14.545	14.674	14.694	14.694	14.694	14.694	14.662	14.528	14.065	14.065	P 1
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR C	PCT SPAN	95.00	90.01	85.00	70.01	50.02	30.02	15.01	10.00	4.98	PCT SPAN
DIA	33.235	33.621	34.006	35.163	36.705	38.247	39.405	39.791	40.178	40.178	DIA
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1
BETA 2	49.788	47.286	43.184	40.356	39.570	39.157	40.375	45.264	51.586	51.586	BETA 2
BETA(PR) 1	52.523	51.876	51.996	52.658	54.077	55.831	57.371	58.841	63.436	63.436	BETA(PR) 1
BETA(PR) 2	23.397	25.672	24.694	24.938	29.272	32.825	35.838	39.888	45.878	45.878	BETA(PR) 2
V 1	464.85	481.81	485.75	492.24	490.60	481.56	469.55	448.21	374.54	374.54	V 1
V 2	582.95	579.81	610.16	642.17	628.40	618.99	602.72	561.43	516.79	516.79	V 2
VZ 1	464.83	481.81	485.75	492.20	490.36	480.99	468.69	447.29	373.69	373.69	VZ 1
VZ 2	370.36	393.31	444.89	489.29	484.15	479.44	458.42	394.54	320.66	320.66	VZ 2
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1
V-THETA 2	445.17	426.01	417.56	415.77	400.10	390.43	389.80	398.19	404.37	404.37	V-THETA 2
V(PR) 1	764.0	780.4	788.9	811.5	835.9	856.7	869.7	864.9	836.0	836.0	V(PR) 1
V(PR) 2	410.1	436.4	489.7	539.7	555.4	571.3	566.5	515.2	461.4	461.4	V(PR) 2
VTHTA PR1	-606.3	-613.9	-621.7	-645.1	-676.8	-708.6	-732.1	-739.8	-747.4	-747.4	VTHTA PR1
VTHTA PR2	-162.8	-189.1	-204.6	-227.5	-271.4	-309.3	-331.1	-329.8	-330.6	-330.6	VTHTA PR2
U 1	606.29	613.93	621.65	645.11	676.84	708.59	732.05	739.76	747.40	747.40	U 1
U 2	608.01	615.07	622.12	643.28	671.48	699.70	720.88	727.94	735.02	735.02	U 2
M 1	0.4238	0.4399	0.4436	0.4498	0.4482	0.4396	0.4282	0.4081	0.3393	0.3393	M 1
M 2	0.5134	0.5110	0.5397	0.5702	0.5571	0.5484	0.5321	0.4931	0.4520	0.4520	M 2
M(PR) 1	0.6965	0.7125	0.7205	0.7414	0.7637	0.7821	0.7932	0.7876	0.7574	0.7574	M(PR) 1
M(PR) 2	0.3611	0.3846	0.4331	0.4792	0.4924	0.5061	0.5002	0.4525	0.4035	0.4035	M(PR) 2
TURN(PR)	29.125	26.203	27.303	27.722	24.813	23.024	21.561	18.989	17.606	17.606	TURN(PR)
UUBAR	0.2025	0.1984	0.1223	0.0666	0.0434	0.0464	0.0812	0.1548	0.1675	0.1675	UUBAR
LOSS PARA	0.0537	0.0523	0.0329	0.0130	0.0122	0.0132	0.0230	0.0420	0.0418	0.0418	LOSS PARA
DFAC	0.6317	0.6007	0.5362	0.4922	0.4892	0.4859	0.5041	0.5660	0.6200	0.6200	DFAC
EFFP	0.7817	0.7687	0.8494	0.9703	0.9727	0.9889	0.9325	0.8481	0.8578	0.8578	EFFP
EFF	0.7744	0.7612	0.8441	0.9691	0.9717	0.9884	0.9298	0.8424	0.8524	0.8524	EFF
INCID	0.681	-0.403	-0.694	-1.399	-1.986	-2.230	-2.071	-1.033	-2.787	-2.787	INCID
DEVM	15.648	16.374	13.774	9.235	8.585	7.960	8.283	11.749	16.994	16.994	DEVM
P 1	14.545	14.674	14.694	14.694	14.694	14.694	14.662	14.528	14.065	14.065	P 1
P 2	18.375	18.355	18.750	19.325	19.355	19.415	19.285	18.795	18.315	18.315	P 2
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2	564.960	563.700	563.020	562.280	562.420	562.180	564.140	565.710	566.380	566.380	T 2
STATOR B	PCT SPAN	95.05	90.12	85.15	70.15	50.00	29.85	14.84	9.88	4.94	PCT SPAN
DIA	33.203	33.556	33.910	34.981	36.420	37.859	38.930	39.285	39.637	39.637	DIA
BETA 2	49.271	46.752	42.708	40.049	39.195	38.658	39.737	44.506	50.628	50.628	BETA 2
BETA 2A	1.340	2.030	3.970	5.801	5.101	5.031	5.312	5.273	5.223	5.223	BETA 2A
V 2	587.55	585.06	615.94	646.84	634.31	626.83	612.06	570.25	525.12	525.12	V 2
V 2A	414.79	429.61	447.32	504.48	532.23	540.38	529.73	505.07	475.04	475.04	V 2A
VZ 2	383.36	400.86	452.60	495.09	491.36	489.00	469.99	406.12	332.70	332.70	VZ 2
VZ 2A	414.67	429.34	446.24	501.84	529.91	537.84	526.79	502.23	472.33	472.33	VZ 2A
V-THETA 2	445.25	426.16	417.75	416.15	400.67	391.18	390.71	399.18	405.44	405.44	V-THETA 2
V-THETA 2A	9.70	15.22	30.97	50.98	47.30	47.35	48.98	46.35	43.17	43.17	V-THETA 2A
M 2	0.5176	0.5159	0.5451	0.5746	0.5627	0.5557	0.5409	0.5013	0.4595	0.4595	M 2
M 2A	0.3606	0.3743	0.3904	0.4424	0.4677	0.4753	0.4647	0.4416	0.4141	0.4141	M 2A
TURN(PR)	47.931	44.722	38.737	34.242	34.074	33.586	34.363	39.162	45.328	45.328	TURN(PR)
UUBAR	0.0841	0.0417	0.1093	0.0921	0.0179	0.0237	0.0606	0.0078	-0.0648	-0.0648	UUBAR
LOSS PARA	0.0272	0.0136	0.0359	0.0310	0.0063	0.0086	0.0228	0.0030	-0.0249	-0.0249	LOSS PARA
DFAC	0.5340	0.4952	0.4808	0.4118	0.3579	0.3401	0.3470	0.3523	0.3637	0.3637	DFAC
EFFP	0.8477	0.9181	0.7916	0.7914	0.9466	0.9185	0.7843	0.9675	1.3252	1.3252	EFFP
INCID	2.300	0.551	-2.763	-3.627	-3.057	-3.740	-3.635	0.574	6.088	6.088	INCID
DEVM	14.371	14.884	16.704	18.134	17.219	17.735	18.816	19.074	19.366	19.366	DEVM
P 2	18.375	18.355	18.750	19.325	19.355	19.415	19.285	18.795	18.315	18.315	P 2
P 2A	18.117	18.228	18.375	18.968	19.288	19.328	19.074	18.772	18.475	18.475	P 2A
T 2	564.960	563.700	563.020	562.280	562.420	562.180	564.140	565.710	566.380	566.380	T 2
T 2A	564.960	563.700	563.020	562.280	562.420	562.180	564.140	565.710	566.380	566.380	T 2A
UUBAR FS	0.1466	0.1429	0.1106	0.0723	0.0514	0.0501	0.0679	0.0884	0.1229	0.1229	UUBAR FS
P2 FS	18.600	18.715	18.755	19.242	19.287	19.517	19.212	19.057	18.867	18.867	P2 FS
LOSS PARA FS	0.0474	0.0465	0.0363	0.0243	0.0182	0.0182	0.0255	0.0340	0.0499	0.0499	LOSS PARA FS

Table A-3. Blade Element Performance

Stage C Rotor C - Stator B												
CALCULATIONS USING TRANSLATED VALUES												
PERCENT EQUIVALENT ROTOR SPEED = 109.34 EQUIVALENT ROTOR SPEED = 4603.26 EQUIVALENT WEIGHT FLOW = 125.30												
INLET	PCT SPAN	96.61	91.52	86.39	70.81	49.79	28.83	13.41	8.35	3.34	PCT SPAN	
	DIA	33.138	33.570	34.006	35.328	37.113	38.892	40.202	40.631	41.056	DIA	
	BETA 0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 0	
	BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1	
	V 0	537.06	537.06	537.06	537.06	537.06	537.06	537.06	537.06	537.06	V 0	
	V 1	550.13	561.25	561.58	558.62	555.54	550.37	534.64	513.17	455.84	V 1	
	VZ 0	537.05	537.06	537.06	537.05	537.01	536.96	536.91	536.89	536.87	VZ 0	
	VZ 1	550.12	561.25	561.58	558.61	555.50	550.27	534.49	513.01	455.68	VZ 1	
	V-THETA 0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 0	
	V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1	
	M 0	0.4926	0.4926	0.4926	0.4926	0.4926	0.4926	0.4926	0.4926	0.4926	M 0	
	M 1	0.5052	0.5160	0.5163	0.5134	0.5108	0.5054	0.4903	0.4697	0.4153	M 1	
	TURN	0.0361	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN	
	UUBAR	0.0361	0.0	0.0	0.0	0.0	0.0	0.0387	0.1238	0.3402	UUBAR	
	DFAC	-0.024	-0.045	-0.046	-0.040	-0.035	-0.025	0.004	0.044	0.151	DFAC	
	EFFP	0.6025	1.0000	1.0000	1.0001	0.9998	1.0002	-0.3456	-3.3823	-7.5821	EFFP	
	INCID	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	INCID	
	DEVM	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	DEVM	
	P 0	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	P 0	
	P 1	14.613	14.694	14.694	14.694	14.694	14.694	14.607	14.416	13.930	P 1	
	T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0	
	T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1	
ROTOR C ROTOR -L.E. ROTOR -T.E.	PCT SPAN	95.00	90.01	85.00	70.01	50.02	30.02	15.01	10.00	4.98	PCT SPAN	
	DIA	33.235	33.621	34.006	35.163	36.705	38.247	39.405	39.791	40.178	DIA	
	BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1	
	BETA 2	39.804	35.154	31.531	31.458	31.903	30.039	29.373	31.402	35.276	BETA 2	
	BETA(PR) 1	48.709	48.533	48.870	50.078	51.647	53.280	54.987	56.390	59.772	BETA(PR) 1	
	BETA(PR) 2	28.659	26.920	26.141	25.887	31.148	33.075	35.632	38.421	49.058	BETA(PR) 2	
	V 1	584.61	595.66	596.02	592.73	588.27	580.97	564.07	540.93	479.22	V 1	
	V 2	629.74	681.48	725.65	754.82	708.25	722.74	711.27	668.64	532.66	V 2	
	VZ 1	584.60	595.65	596.02	592.67	587.98	580.29	563.04	539.82	478.13	VZ 1	
	VZ 2	483.78	557.19	618.51	643.78	600.89	624.80	618.51	569.39	433.83	VZ 2	
	V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1	
	V-THETA 2	403.13	392.38	379.48	393.85	374.07	361.29	348.13	347.59	306.90	V-THETA 2	
	V(PR) 1	685.9	699.5	906.1	923.6	947.8	971.0	981.9	975.8	950.3	V(PR) 1	
	V(PR) 2	551.3	624.9	689.0	715.7	702.6	746.6	762.4	728.2	663.0	V(PR) 2	
	VTHETA PR1	-665.7	-674.0	-682.5	-708.3	-743.1	-778.0	-803.7	-812.2	-820.6	VTHETA PR1	
	VTHETA PR2	-264.4	-282.9	-303.6	-312.4	-363.2	-406.9	-443.3	-451.6	-500.1	VTHETA PR2	
	U 1	665.65	674.05	682.52	708.27	743.11	777.97	803.73	812.19	820.58	U 1	
	U 2	667.55	675.29	683.04	706.27	737.23	768.21	791.46	799.22	806.99	U 2	
	M 1	0.5386	0.5494	0.5498	0.5466	0.5422	0.5351	0.5187	0.4963	0.4374	M 1	
	M 2	0.5568	0.6061	0.6489	0.6783	0.6326	0.6466	0.6357	0.5944	0.4676	M 2	
	M(PR) 1	0.8163	0.8297	0.8359	0.8516	0.8736	0.8943	0.9029	0.8954	0.8673	M(PR) 1	
	M(PR) 2	0.4875	0.5558	0.6161	0.6432	0.6275	0.6680	0.6814	0.6473	0.5821	M(PR) 2	
	TURN(PR) 1	20.050	21.613	22.730	24.194	20.507	20.222	19.382	18.003	10.757	TURN(PR) 1	
	UUBAR	0.3826	0.2818	0.1729	0.1398	0.1937	0.1407	0.1317	0.1853	0.2612	UUBAR	
	LOSS PARA	0.0949	0.0735	0.0460	0.0387	0.0534	0.0397	0.0374	0.0514	0.0613	LOSS PARA	
	DFAC	0.5393	0.4330	0.3638	0.3560	0.3854	0.3558	0.3465	0.3788	0.4170	DFAC	
	EFFP	0.4780	0.5954	0.7251	0.8582	0.7519	0.8274	0.8355	0.7512	0.5513	EFFP	
	EFF	0.4672	0.5851	0.7167	0.8532	0.7442	0.8214	0.8298	0.7433	0.5410	EFF	
	INCID	-3.132	-3.745	-3.820	-3.979	-4.416	-4.782	-4.456	-3.486	-0.881	INCID	
	DEVM	20.910	17.621	15.222	10.184	10.460	8.211	8.077	10.283	20.175	DEVM	
	P 1	14.613	14.694	14.694	14.694	14.694	14.694	14.607	14.416	13.930	P 1	
	P 2	16.880	17.950	18.200	18.775	18.265	18.670	18.575	17.960	16.350	P 2	
	T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1	
	T 2	565.400	564.850	564.330	562.800	563.400	563.420	563.125	563.930	563.600	T 2	
STATOR B STATOR-L.E. STATOR-T.E.	PCT SPAN	95.05	90.12	85.15	70.15	50.00	29.85	14.84	9.88	4.94	PCT SPAN	
	DIA	33.203	33.556	33.910	34.981	36.420	37.859	38.930	39.285	39.637	DIA	
	BETA 2	39.415	34.744	31.144	31.171	31.569	29.597	28.845	30.841	34.716	BETA 2	
	BETA 2A	3.840	5.220	5.831	5.700	5.781	6.712	6.543	6.133	5.123	BETA 2A	
	V 2	635.04	688.71	734.11	761.75	715.94	733.83	724.64	681.06	541.42	V 2	
	V 2A	673.64	719.30	736.35	773.84	781.96	787.61	807.01	775.60	720.65	V 2A	
	VZ 2	490.61	565.92	628.29	651.67	699.65	637.29	633.55	583.59	444.13	VZ 2	
	VZ 2A	672.13	716.32	732.54	769.92	777.67	781.56	800.76	770.09	716.65	VZ 2A	
	V-THETA 2	403.20	392.51	379.67	394.21	374.60	361.99	348.95	348.45	307.71	V-THETA 2	
	V-THETA 2A	45.11	65.45	74.80	76.85	78.73	91.97	91.84	82.74	64.25	V-THETA 2A	
	M 2	0.5618	0.6130	0.6571	0.6851	0.6400	0.6574	0.6486	0.6062	0.4757	M 2	
	M 2A	0.5983	0.6424	0.6593	0.6970	0.7047	0.7102	0.7298	0.6980	0.6445	M 2A	
	TURN(PR) 1	35.575	29.524	25.313	25.465	25.770	22.851	22.252	24.648	29.519	TURN(PR) 1	
	UUBAR	0.2120	0.1933	0.2598	0.2273	0.1475	0.2148	0.1943	0.2254	0.0469	UUBAR	
	LOSS PARA	0.0685	0.0628	0.0851	0.0764	0.0517	0.0782	0.0730	0.0857	0.0180	LOSS PARA	
	DFAC	0.1218	0.1108	0.1339	0.1257	0.0540	0.0625	0.0216	0.0115	-0.1559	DFAC	
	EFFP	2.5021	2.8476	37.5300	7.0061	1.6487	2.2020	1.6868	1.6568	1.0537	EFFP	
	INCID	-7.556	-11.457	-14.327	-12.404	-10.681	-12.796	-14.518	-13.081	-9.820	INCID	
	DEVM	16.871	18.074	18.565	18.034	17.898	19.414	20.045	19.932	19.267	DEVM	
	P 2	16.880	17.550	18.200	18.775	18.265	18.670	18.575	17.960	16.350	P 2	
	P 2A	16.190	16.790	17.010	17.425	17.616	17.660	17.686	17.070	16.240	P 2A	
	T 2	565.400	564.850	564.330	562.800	563.400	563.420	563.125	563.930	563.600	T 2	
	T 2A	565.400	564.850	564.330	562.800	563.400	563.420	563.130	563.920	563.590	T 2A	
	UUBAR FS	0.02718	0.02230	0.02202	0.02526	0.01792	0.01972	0.01435	0.01746	0.03174	UUBAR FS	
	P2 FS	17.147	17.700	17.967	18.946	18.435	18.567	18.304	17.717	17.278	P2 FS	
	LOSS PARA FS	0.00878	0.0724	0.0721	0.0851	0.0628	0.0717	0.0539	0.0663	0.1217	LOSS PARA FS	

Table A-3. Blade Element Performance (Continued)

Stage C Rotor C - Stator B											
CALCULATIONS USING TRANSLATED VALUES											
PERCENT EQUIVALENT ROTOR SPEED = 110.00 EQUIVALENT ROTOR SPEED = 4630.90 EQUIVALENT WEIGHT FLOW = 122.43											
INLET											
PCT SPAN	96.61	91.52	86.39	70.81	49.79	28.83	13.41	8.35	3.34	PCT SPAN	
DIA	33.138	33.570	34.006	35.328	37.113	38.892	40.202	40.631	41.056	DIA	
BETA 0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 0	
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1	
V 0	521.22	521.22	521.22	521.22	521.22	521.22	521.22	521.22	521.22	V 0	
V 1	478.76	523.97	528.64	534.53	538.01	534.86	526.49	502.59	417.37	V 1	
VZ 0	521.22	521.22	521.21	521.21	521.18	521.13	521.08	521.06	521.04	VZ 0	
VZ 1	478.75	523.97	528.64	534.52	537.97	534.76	526.34	502.43	417.23	VZ 1	
V-THETA 0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 0	
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1	
M 0	0.4774	0.4774	0.4774	0.4774	0.4774	0.4774	0.4774	0.4774	0.4774	M 0	
M 1	0.4370	0.4800	0.4845	0.4902	0.4935	0.4905	0.4825	0.4596	0.3792	M 1	
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN	
UUBAR	0.1903	0.0	0.0	0.0	0.0	0.0	0.0	0.1008	0.4283	UUBAR	
DFAC	0.081	-0.005	-0.014	-0.026	-0.032	-0.026	-0.010	0.036	0.199	DFAC	
EFFP	-8.2069	0.9983	0.9997	0.9996	0.9997	0.9995	0.9992	-3.2128	-8.0198	EFFP	
INC10	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	INC10	
DEVM	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	DEVM	
P 0	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	P 0	
P 1	14.290	14.694	14.694	14.694	14.694	14.694	14.694	14.480	13.785	P 1	
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0	
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1	
ROTOR C											
PCT SPAN	95.00	90.01	85.00	70.01	50.02	30.02	15.01	10.00	4.98	PCT SPAN	
DIA	33.235	33.621	34.006	35.163	36.705	38.247	39.405	39.791	40.178	DIA	
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1	
BETA 2	48.932	46.146	41.687	38.047	37.876	37.251	38.338	42.720	47.661	BETA 2	
BETA(PR) 1	52.922	50.731	50.823	51.539	52.763	54.257	55.576	57.112	62.106	BETA(PR) 1	
BETA(PR) 2	27.071	28.390	26.947	25.517	29.086	32.842	35.509	39.133	44.333	BETA(PR) 2	
V 1	506.06	554.40	559.54	566.03	568.49	563.94	555.14	529.43	437.98	V 1	
V 2	616.28	620.09	657.74	716.19	704.68	691.37	675.95	631.10	581.99	V 2	
VZ 1	506.04	554.39	559.53	565.97	568.21	563.28	554.13	528.34	436.98	VZ 1	
VZ 2	404.87	429.62	491.19	563.93	555.94	549.68	529.27	462.86	391.35	VZ 2	
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1	
V-THETA 2	464.63	447.15	437.43	441.33	432.41	418.00	418.57	427.42	429.50	V-THETA 2	
V(PR) 1	839.4	875.9	885.7	910.0	939.2	964.7	980.8	973.6	934.5	V(PR) 1	
V(PR) 2	454.7	488.3	551.0	625.0	636.6	655.1	651.4	597.8	548.1	V(PR) 2	
VTHETA PR1	-669.6	-678.1	-686.6	-712.5	-747.6	-782.6	-808.6	-817.1	-825.5	VTHETA PR1	
VTHETA PR2	-206.9	-232.2	-249.7	-269.2	-309.3	-354.8	-377.6	-376.6	-382.3	VTHETA PR2	
U 1	669.65	678.09	686.62	712.53	747.57	782.64	808.56	817.07	825.51	U 1	
U 2	671.56	679.34	687.14	710.51	741.66	772.82	796.22	804.02	811.83	U 2	
M 1	0.4629	0.5093	0.5143	0.5206	0.5230	0.5186	0.5100	0.4853	0.3985	M 1	
M 2	0.5411	0.5455	0.5809	0.6364	0.6247	0.6122	0.5962	0.5532	0.5074	M 2	
M(PR) 1	0.7678	0.8047	0.8141	0.8369	0.8640	0.8870	0.9011	0.8924	0.8503	M(PR) 1	
M(PR) 2	0.3992	0.4296	0.4867	0.5554	0.5643	0.5801	0.5745	0.5240	0.4779	M(PR) 2	
TURN(PR)	25.850	22.341	23.876	26.025	23.684	21.431	20.094	18.014	17.820	TURN(PR)	
UUBAR	0.2291	0.2491	0.1621	0.0590	0.0606	0.0579	0.0947	0.1589	0.1410	UUBAR	
LOSS PARA	0.0589	0.0641	0.0428	0.0164	0.0171	0.0164	0.0269	0.0436	0.0361	LOSS PARA	
DFAC	0.6183	0.5919	0.5243	0.4621	0.4699	0.4661	0.4839	0.5401	0.5768	DFAC	
EFFP	0.7585	0.7152	0.8044	0.9550	0.9512	0.9656	0.9062	0.8310	0.8670	EFFP	
EFF	0.7496	0.7055	0.7970	0.9530	0.9489	0.9640	0.9019	0.8237	0.8609	EFF	
INC10	1.080	-1.547	-1.867	-2.517	-3.301	-3.805	-3.867	-2.764	1.455	INC10	
DEVM	19.322	19.092	16.028	9.814	8.399	7.978	7.954	10.994	15.448	DEVM	
P 1	14.290	14.694	14.694	14.694	14.694	14.694	14.694	14.480	13.785	P 1	
P 2	18.480	18.590	19.120	20.110	20.220	20.270	20.150	19.530	18.910	P 2	
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1	
T 2	571.450	569.800	569.550	569.750	570.900	570.500	573.000	574.900	575.650	T 2	
STATOR B											
PCT SPAN	95.05	90.12	85.15	70.15	50.00	29.85	14.84	9.88	4.94	PCT SPAN	
DIA	33.203	33.556	33.910	34.981	36.420	37.859	38.930	39.285	39.637	DIA	
BETA 2	48.410	45.606	41.201	37.719	37.466	36.718	37.665	41.948	46.753	BETA 2	
BETA 2A	0.750	2.500	4.400	5.975	4.951	4.551	5.027	4.752	4.202	BETA 2A	
V 2	621.34	626.00	664.42	722.13	712.21	701.22	687.66	641.97	592.05	V 2	
VZ 2	445.41	470.41	497.79	581.29	609.53	619.46	605.83	579.26	539.97	VZ 2	
VZ 2A	412.45	437.94	499.91	571.15	565.02	561.51	543.52	476.74	405.06	VZ 2A	
V-THETA 2	445.37	469.96	496.32	578.06	607.01	616.99	602.75	576.46	537.67	V-THETA 2	
V-THETA 2A	464.71	447.30	437.65	441.73	433.02	418.81	419.55	428.48	430.63	V-THETA 2A	
M 2	5.83	20.52	38.19	60.50	52.58	49.11	53.02	47.92	39.50	M 2	
M 2A	0.5458	0.5510	0.5872	0.6421	0.6319	0.6216	0.6073	0.5633	0.5167	M 2A	
TURN(PR)	0.3857	0.4087	0.4334	0.5095	0.5351	0.5446	0.5307	0.5053	0.4691	TURN(PR)	
UUBAR	47.659	43.105	36.800	31.738	32.496	32.126	32.577	37.125	42.470	UUBAR	
LOSS PARA	0.0826	0.0519	0.1156	0.1016	0.0367	0.0376	0.0855	0.0396	0.0032	LOSS PARA	
DFAC	0.0267	0.0169	0.0379	0.0342	0.0129	0.0138	0.0322	0.0151	0.0012	DFAC	
EFFP	0.5223	0.4713	0.4490	0.3743	0.3330	0.3109	0.3218	0.3257	0.3449	EFFP	
INC10	0.8472	0.8934	0.7665	0.7512	0.8826	0.8528	0.6678	0.8121	0.9831	INC10	
DEVM	1.438	-0.596	-4.270	-5.956	-4.785	-5.680	-5.706	-1.983	2.211	DEVM	
P 2	13.781	15.354	17.134	18.309	17.069	17.256	18.531	18.553	18.348	P 2	
P 2A	18.480	18.590	19.120	20.110	20.220	20.270	20.150	19.530	18.910	P 2A	
T 2	18.200	18.410	18.660	18.615	20.045	20.095	19.770	19.380	18.900	T 2	
T 2A	571.450	569.800	569.550	569.750	570.900	570.500	573.000	574.900	575.650	T 2A	
UUBAR FS	571.450	569.800	569.550	569.750	570.900	570.500	573.000	574.900	575.650	UUBAR FS	
P2 FS	0.1538	0.1533	0.1166	0.0894	0.0545	0.0652	0.0819	0.1036	0.1694	P2 FS	
LOSS PARA FS	18.765	19.053	19.125	20.045	20.210	20.407	20.132	19.759	19.340	LOSS PARA FS	
	0.0497	0.0499	0.0382	0.0300	0.0191	0.0239	0.0308	0.0395	0.0635		

Table A-3. Blade Element Performance (Continued)

Stage C Rotor C - Stator B											
CALCULATIONS USING TRANSLATED VALUES											
PERCENT EQUIVALENT ROTOR SPEED = 110.22 EQUIVALENT ROTOR SPEED = 4640.11 EQUIVALENT WEIGHT FLOW = 118.34											
INLET											
PCT SPAN	96.61	91.52	86.39	70.81	49.79	28.83	13.41	8.35	3.34	PCT SPAN	
DIA	33.138	33.570	34.006	35.328	37.113	38.892	40.202	40.631	41.056	DIA	
BETA 0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 0	
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1	
V 0	499.06	499.06	499.06	499.06	499.06	499.06	499.06	499.06	499.06	V 0	
V 1	485.50	507.22	512.95	519.28	520.41	515.58	497.52	476.62	409.75	V 1	
VZ 0	499.06	499.06	499.06	499.05	499.02	498.97	498.93	498.91	498.89	VZ 0	
VZ 1	485.50	507.22	512.95	519.27	520.36	515.49	497.38	476.48	409.60	VZ 1	
V-THETA 0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 0	
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1	
M 0	0.4562	0.4562	0.4562	0.4562	0.4562	0.4562	0.4562	0.4562	0.4562	M 0	
M 1	0.4433	0.4640	0.4695	0.4755	0.4766	0.4720	0.4548	0.4349	0.3721	M 1	
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN	
UUBAR	0.0911	0.0082	0.0	0.0	0.0	0.0	0.0379	0.1166	0.3780	UUBAR	
DFAC	0.027	-0.016	-0.028	-0.041	-0.043	-0.033	0.003	0.045	0.179	DFAC	
EFFP	-1.7813	0.8147	1.0000	1.0000	0.9999	1.0000	-0.2172	-4.4845	-10.6440	EFFP	
INCID	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	INCID	
DEVM	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	DEVM	
P 0	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	P 0	
P 1	14.516	14.678	14.694	14.694	14.694	14.694	14.620	14.466	13.955	P 1	
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0	
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1	
ROTOR C											
PCT SPAN	95.00	90.01	85.00	70.01	50.02	30.02	15.01	10.00	4.98	PCT SPAN	
DIA	33.235	33.621	34.006	35.163	36.705	38.247	39.405	39.791	40.178	DIA	
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1	
BETA 2	51.393	49.610	44.758	40.484	40.010	39.719	41.648	47.289	53.957	BETA 2	
BETA(PR) 1	52.576	51.728	51.750	52.432	53.768	55.334	57.172	58.574	62.594	BETA(PR) 1	
BETA(PR) 2	23.639	26.127	25.592	24.770	28.574	32.587	36.250	40.543	46.085	BETA(PR) 2	
V 1	513.46	536.05	542.37	549.23	549.14	542.95	523.64	501.26	429.84	V 1	
V 2	638.08	630.58	659.37	711.88	701.37	685.60	659.04	613.53	573.68	V 2	
VZ 1	513.45	536.05	542.37	549.18	548.87	542.31	522.69	500.24	428.86	VZ 1	
VZ 2	398.14	408.61	468.20	541.38	536.93	526.78	491.69	415.56	337.13	VZ 2	
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1	
V-THETA 2	498.62	480.28	464.26	462.12	450.70	437.64	437.28	450.16	463.30	V-THETA 2	
V(PR) 1	844.9	865.4	876.1	900.8	928.8	953.8	964.7	960.0	932.2	V(PR) 1	
V(PR) 2	434.6	455.1	519.1	596.3	611.8	626.0	610.8	547.8	486.9	V(PR) 2	
VTHETA PR1	-671.0	-679.4	-688.0	-713.9	-749.1	-784.2	-810.2	-818.7	-827.1	VTHETA PR1	
VTHETA PR2	-174.3	-200.4	-224.2	-249.8	-292.4	-336.7	-360.5	-355.5	-350.2	VTHETA PR2	
U 1	670.98	679.44	687.99	713.94	749.06	784.20	810.17	818.69	827.15	U 1	
U 2	672.89	680.70	688.51	711.92	743.13	774.36	797.80	805.62	813.45	U 2	
M 1	0.4700	0.4916	0.4977	0.5043	0.5042	0.4983	0.4797	0.4583	0.3909	M 1	
M 2	0.5592	0.5530	0.5801	0.6302	0.6200	0.6049	0.5787	0.5354	0.4984	M 2	
M(PR) 1	0.7734	0.7937	0.8039	0.8271	0.8528	0.8753	0.8838	0.8778	0.8476	M(PR) 1	
M(PR) 2	0.3809	0.3991	0.4568	0.5279	0.5408	0.5524	0.5363	0.4780	0.4230	M(PR) 2	
TURN(PR) 1	28.936	25.601	26.159	27.664	25.201	22.764	20.951	18.068	16.557	TURN(PR) 1	
UUBAR	0.2361	0.2446	0.1579	0.0522	0.0473	0.0535	0.0918	0.1756	0.1958	UUBAR	
LOSS PARA	0.0624	0.0642	0.0422	0.0146	0.0134	0.0152	0.0259	0.0472	0.0487	LOSS PARA	
DFAC	0.6562	0.6366	0.5645	0.4955	0.4970	0.4974	0.5240	0.5939	0.6543	DFAC	
EFFP	0.7604	0.7360	0.8070	0.9490	0.9639	0.9643	0.9116	0.8269	0.8414	EFFP	
EFF	0.7508	0.7260	0.7990	0.9465	0.9622	0.9626	0.9073	0.8190	0.8340	EFF	
INCID	0.734	-0.550	-0.940	-1.625	-2.295	-2.727	-2.270	-1.7300	-1.945	INCID	
DEVM	15.890	16.829	14.672	9.067	7.888	7.723	8.694	12.404	17.201	DEVM	
P 1	14.516	14.678	14.694	14.694	14.694	14.694	14.620	14.466	13.955	P 1	
P 2	19.160	19.080	19.545	20.485	20.630	20.645	20.415	19.780	19.270	P 2	
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1	
T 2	575.720	574.300	573.830	573.270	573.580	573.680	575.920	577.920	578.770	T 2	
STATOR B											
PCT SPAN	95.05	90.12	85.15	70.15	50.00	29.85	14.84	9.88	4.94	PCT SPAN	
DIA	33.203	33.556	33.910	34.981	36.420	37.859	38.930	39.285	39.637	DIA	
BETA 2	50.808	48.994	44.218	40.132	39.574	39.147	40.920	46.415	52.851	BETA 2	
BETA 2A	0.430	1.100	3.870	5.991	4.991	4.971	5.272	4.972	4.293	BETA 2A	
V 2	643.47	636.66	666.06	717.71	708.79	695.23	670.09	623.82	583.43	V 2	
V 2A	437.89	449.95	467.55	542.78	579.97	591.16	569.04	546.67	513.01	V 2A	
VZ 2	406.62	417.73	477.35	548.66	546.09	538.64	505.63	429.52	351.94	VZ 2	
VZ 2A	437.88	449.86	466.48	539.76	577.54	588.44	565.93	543.85	510.77	VZ 2A	
V-THETA 2	498.71	480.44	464.49	462.54	451.34	438.48	438.31	451.28	464.52	V-THETA 2	
V-THETA 2A	3.29	8.64	31.56	56.64	50.43	51.19	52.22	47.32	38.34	V-THETA 2A	
M 2	0.5642	0.5586	0.5864	0.6358	0.6271	0.6141	0.5891	0.5449	0.5073	M 2	
M 2A	0.3776	0.3888	0.4046	0.4727	0.5065	0.5168	0.4955	0.4742	0.4435	M 2A	
TURN(PR)	50.378	47.894	40.347	34.135	34.563	34.135	35.586	41.371	48.481	TURN(PR)	
UUBAR	0.0725	0.0263	0.0981	0.1057	0.0281	0.0162	0.0604	-0.0171	-0.0644	UUBAR	
LOSS PARA	0.0235	0.0086	0.0322	0.0356	0.0099	0.0059	0.0227	-0.0065	-0.0248	LOSS PARA	
DFAC	0.5688	0.5354	0.5124	0.4358	0.3817	0.3550	0.3700	0.3727	0.4047	DFAC	
EFFP	0.8794	0.9532	0.8286	0.7857	0.9269	0.9498	0.8104	1.0653	1.2541	EFFP	
INCID	3.837	2.793	-1.253	-3.544	-2.678	-3.251	-2.453	2.483	8.313	INCID	
DEVM	13.461	13.954	16.604	18.324	17.109	17.675	18.776	18.773	18.438	DEVM	
P 2	19.160	19.080	19.545	20.485	20.630	20.645	20.415	19.780	19.270	P 2	
P 2A	18.890	18.984	19.147	19.969	20.495	20.570	20.157	19.842	19.470	P 2A	
T 2	575.720	574.300	573.830	573.270	573.580	573.680	575.920	577.920	578.770	T 2	
T 2A	575.720	574.300	573.830	573.270	573.580	573.680	575.920	577.920	578.770	T 2A	
UUBAR FS	0.1427	0.1459	0.1218	0.0783	0.0537	0.0553	0.0849	0.0886	0.1308	UUBAR FS	
P2 FS	19.465	19.590	19.655	20.340	20.760	20.837	20.530	20.200	19.967	P2 FS	
LOSS PARA FS	0.0462	0.0477	0.0399	0.0263	0.0189	0.0201	0.0319	0.0396	0.0503	LOSS PARA FS	

Table A-3. Blade Element Performance (Continued)

Stage C Rotor C - Stator B											
CALCULATIONS USING TRANSLATED VALUES											
PERCENT EQUIVALENT ROTOR SPEED = 110.01 EQUIVALENT ROTOR SPEED = 4631.52 EQUIVALENT WEIGHT FLOW = 113.12											
INLET	PCT SPAN	96.61	91.52	86.39	70.81	49.79	28.83	13.41	8.35	3.34	PCT SPAN
	DIA	33.138	33.570	34.006	35.328	37.113	38.892	40.202	40.631	41.056	DIA
	BETA 0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 0
	BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1
	V 0	471.80	471.80	471.80	471.80	471.80	471.80	471.80	471.80	471.80	V 0
	V 1	460.45	476.42	479.84	489.58	492.85	488.86	472.46	453.10	376.84	V 1
	VZ 0	471.80	471.80	471.80	471.79	471.76	471.72	471.67	471.66	471.64	VZ 0
	VZ 1	460.44	476.42	479.84	489.57	492.81	488.77	472.33	452.96	376.71	VZ 1
	V-THETA 0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 0
	V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1
	M 0	0.4304	0.4304	0.4304	0.4304	0.4304	0.4304	0.4304	0.4304	0.4304	M 0
	M 1	0.4196	0.4347	0.4380	0.4472	0.4503	0.4465	0.4310	0.4127	0.3415	M 1
	TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
	UUBAR	0.0734	0.0046	0.0	0.0	0.0	0.0	0.0444	0.1247	0.4270	UUBAR
	DFAC	0.024	-0.010	-0.017	-0.038	-0.045	-0.036	-0.001	0.040	0.201	DFAC
	EFFP	-2.3221	0.8232	0.9998	1.0000	1.0000	0.9997	0.0640	-2.0316	-8.0885	EFFP
	INCID	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	INCID
	DEVM	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	DEVM
	P 0	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	P 0
	P 1	14.565	14.686	14.694	14.694	14.694	14.694	14.616	14.475	13.944	P 1
	T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
	T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR C ROTOR -L.E. ROTOR -T.E.	PCT SPAN	95.00	90.01	85.00	70.01	50.02	30.02	15.01	10.00	4.98	PCT SPAN
	DIA	33.235	33.621	34.006	35.163	36.705	38.247	39.405	39.791	40.178	DIA
	BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1
	BETA 2	54.241	53.190	49.236	43.091	41.816	41.753	45.248	51.566	57.851	BETA 2
	BETA(PR) 1	54.027	53.465	53.605	54.053	55.236	56.742	58.498	59.833	64.492	BETA(PR) 1
	BETA(PR) 2	22.238	27.308	26.609	25.448	28.774	32.764	36.824	42.112	45.458	BETA(PR) 2
	V 1	486.14	502.48	506.20	516.79	519.21	513.95	496.50	475.95	394.84	V 1
	V 2	639.41	612.12	633.69	689.55	689.68	675.13	644.48	598.49	585.83	V 2
	VZ 1	486.12	502.47	506.20	516.74	518.96	513.35	495.59	474.97	393.94	VZ 1
	VZ 2	373.65	366.76	413.76	503.50	513.76	503.14	453.11	371.57	311.42	VZ 2
	V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1
	V-THETA 2	518.87	490.07	479.95	471.01	459.62	449.11	457.05	468.24	495.51	V-THETA 2
	V(PR) 1	827.6	844.0	853.1	880.3	910.3	936.4	948.9	945.7	915.2	V(PR) 1
	V(PR) 2	403.7	412.8	462.8	557.7	586.5	599.1	567.1	501.8	444.7	V(PR) 2
	VTHTA PR1	-669.7	-678.2	-686.7	-712.6	-747.7	-782.7	-808.7	-817.2	-825.6	VTHTA PR1
	VTHTA PR2	-152.8	-189.4	-207.3	-239.6	-282.1	-323.8	-339.3	-335.9	-316.4	VTHTA PR2
	U 1	669.74	678.19	686.71	712.62	747.67	782.75	808.67	817.18	825.62	U 1
	U 2	671.65	679.44	687.23	710.60	741.76	772.92	796.32	804.13	811.94	U 2
	M 1	0.4440	0.4595	0.4630	0.4732	0.4755	0.4705	0.4538	0.4343	0.3582	M 1
	M 2	0.5589	0.5346	0.5551	0.6082	0.6086	0.5946	0.5642	0.5207	0.5085	M 2
	M(PR) 1	0.7558	0.7719	0.7804	0.8060	0.8336	0.8571	0.8673	0.8629	0.8302	M(PR) 1
	M(PR) 2	0.3529	0.3605	0.4054	0.4919	0.5176	0.5277	0.4965	0.4366	0.3861	M(PR) 2
	TURN(PR)	31.788	26.157	26.996	28.608	26.469	23.995	21.704	17.760	19.085	TURN(PR)
	UUBAR	0.3279	0.2608	0.2052	0.0739	0.0460	0.0521	0.1174	0.1980	0.1997	UUBAR
	LOSS PARA	0.0636	0.0678	0.0544	0.0205	0.0130	0.0148	0.0328	0.0520	0.0502	LOSS PARA
	DFAC	0.6935	0.6810	0.6243	0.5308	0.5177	0.5209	0.5695	0.6432	0.7064	DFAC
	EFFP	0.7646	0.7154	0.7688	0.9252	0.9762	0.9795	0.9033	0.8224	0.8814	EFFP
	EFF	0.7546	0.7045	0.7594	0.9216	0.9750	0.9784	0.8985	0.8142	0.8754	EFF
	INCID	2.185	1.187	0.915	-0.003	-0.828	-1.319	-0.943	-0.040	3.845	INCID
	DEVM	14.489	18.010	15.690	9.745	8.087	7.900	9.269	13.972	16.574	DEVM
	P 1	14.565	14.686	14.694	14.694	14.694	14.694	14.616	14.475	13.944	P 1
	P 2	19.520	19.165	19.470	20.460	20.780	20.845	20.530	19.920	19.775	P 2
	T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
	T 2	578.680	576.880	575.890	574.530	574.070	574.400	577.550	579.550	580.900	T 2
STATOR B STATOR-L.E. STATOR-T.E.	PCT SPAN	95.05	90.12	85.15	70.15	50.00	29.85	14.84	9.88	4.94	PCT SPAN
	DIA	33.203	33.556	33.910	34.981	36.420	37.859	38.930	39.285	39.637	DIA
	BETA 2	53.594	52.510	49.633	42.724	41.363	41.153	44.452	50.580	56.552	BETA 2
	BETA 2A	0.080	1.830	3.600	5.570	5.231	5.221	5.412	5.083	3.752	BETA 2A
	V 2	644.81	617.85	639.83	694.94	696.81	684.42	654.99	608.11	595.97	V 2
	V 2A	425.98	427.46	429.83	503.70	546.69	558.51	532.76	509.60	474.87	V 2A
	VZ 2	382.70	376.04	422.85	510.47	522.75	514.87	466.97	385.85	328.18	VZ 2
	VZ 2A	425.96	427.24	428.97	501.27	544.19	555.73	529.72	506.88	473.12	VZ 2A
	V-THETA 2	518.96	490.24	490.18	471.44	460.27	449.98	458.12	469.40	496.81	V-THETA 2
	V-THETA 2A	0.59	13.65	26.99	48.89	49.82	50.78	50.19	45.08	31.02	V-THETA 2A
	M 2	0.5640	0.5399	0.5608	0.6133	0.6154	0.6034	0.5740	0.5298	0.5178	M 2
	M 2A	0.3661	0.3680	0.3704	0.4368	0.4759	0.4865	0.4618	0.4401	0.4086	M 2A
	TURN(PR)	53.514	50.680	45.033	37.148	36.113	35.890	38.976	45.427	52.726	TURN(PR)
	UUBAR	0.0699	-0.0305	0.0427	0.0861	0.0363	0.0275	0.0487	-0.0303	0.0348	UUBAR
	LOSS PARA	0.0226	-0.0099	0.0140	0.0290	0.0127	0.0100	0.0183	-0.0115	0.0134	LOSS PARA
	DFAC	0.5996	0.5601	0.5618	0.4817	0.4237	0.3989	0.4235	0.4305	0.5070	DFAC
	EFFP	0.8891	1.0521	0.9305	0.8413	0.9182	0.9285	0.8732	0.9005	0.9141	EFFP
	INCID	6.623	6.309	3.162	-0.951	-0.889	-1.246	1.078	6.649	12.018	INCID
	DEVM	13.111	14.684	16.334	17.904	17.348	17.925	18.916	18.884	17.898	DEVM
	P 2	19.520	19.165	19.470	20.460	20.780	20.845	20.530	19.920	19.775	P 2
	P 2A	19.255	19.270	19.310	20.065	20.610	20.720	20.330	20.025	19.660	P 2A
	T 2	578.680	576.880	575.890	574.530	574.070	574.400	577.550	579.550	580.900	T 2
	T 2A	578.680	576.880	575.890	574.530	574.070	574.400	577.550	579.550	580.900	T 2A
	UUBAR FS	0.1444	0.1496	0.1181	0.0589	0.0419	0.0393	0.0756	0.0810	0.1361	UUBAR FS
	P2 FS	19.549	19.895	19.790	20.327	20.807	21.000	20.650	20.340	20.162	P2 FS
	LOSS PARA FS	0.0466	0.0485	0.0387	0.0198	0.0146	0.0216	0.0284	0.0310	0.0524	LOSS PARA FS

Table A-3. Blade Element Performance (Continued)

Stage C Rotor C - Stator B											
CALCULATIONS USING TRANSLATED VALUES											
PERCENT EQUIVALENT ROTOR SPEED = 109.59 EQUIVALENT ROTOR SPEED = 4613.68 EQUIVALENT WEIGHT FLOW = 107.10											
INLET											
PCT SPAN	56.61	91.52	66.39	70.81	49.79	28.83	13.41	8.35	3.34	PCT SPAN	
DIA	33.138	33.570	34.006	35.328	37.113	38.892	40.202	40.631	41.056	DIA	
BETA C	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 0	
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1	
V 0	441.51	441.51	441.51	441.51	441.51	441.51	441.51	441.51	441.51	V 0	
V 1	412.74	445.73	450.77	460.41	463.98	459.14	446.19	417.67	345.03	V 1	
VZ 0	441.50	441.51	441.51	441.50	441.47	441.43	441.38	441.37	441.35	VZ 0	
VZ 1	412.73	445.73	450.77	460.40	463.94	459.05	446.07	417.54	344.91	VZ 1	
V-THETA 0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 0	
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1	
M 0	0.4018	0.4018	0.4018	0.4018	0.4018	0.4018	0.4018	0.4018	0.4018	M 0	
M 1	0.3749	0.4058	0.4105	0.4196	0.4230	0.4184	0.4062	0.3795	0.3121	M 1	
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN	
UUBAR	0.1707	0.0091	0.0	0.0	0.0	0.0	0.0	0.1222	0.4293	UUBAR	
DFAC	0.065	-0.010	-0.021	-0.043	-0.051	-0.040	-0.011	0.054	0.219	DFAC	
EFFP	-3.6421	0.6953	0.9996	0.9997	0.9999	0.9998	0.9993	-10.8721	-17.3749	EFFP	
INCID	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	INCID	
DEVM	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	DEVM	
P 0	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	P 0	
P 1	14.430	14.680	14.694	14.694	14.694	14.694	14.694	14.505	14.030	P 1	
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0	
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1	
ROTOR C											
PCT SPAN	55.00	90.01	65.00	70.01	50.02	30.02	15.01	10.00	4.98	PCT SPAN	
DIA	33.235	33.621	34.005	35.163	36.705	38.247	39.405	39.791	40.178	DIA	
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1	
BETA 2	56.671	56.127	52.610	45.501	43.673	43.698	51.123	56.495	61.796	BETA 2	
BETA(PRI) 1	56.912	55.212	55.238	55.055	56.785	58.316	59.875	61.766	66.343	BETA(PRI) 1	
BETA(PRI) 2	26.472	26.422	26.457	25.587	29.653	32.569	39.557	42.340	43.309	BETA(PRI) 2	
V 1	424.73	469.33	474.75	485.12	487.90	481.84	468.28	438.01	361.12	V 1	
V 2	642.92	611.28	624.23	674.96	680.84	608.61	612.32	599.77	610.09	V 2	
VZ 1	434.72	469.33	474.75	485.07	487.66	481.28	467.43	437.11	360.30	VZ 1	
VZ 2	353.25	340.70	379.05	473.02	492.22	482.93	383.89	330.76	288.11	VZ 2	
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1	
V-THETA 2	537.18	507.54	445.95	481.37	467.94	461.46	476.16	499.63	537.23	V-THETA 2	
V(PRI) 1	796.3	822.6	832.7	859.8	890.4	916.6	931.8	924.4	898.2	V(PRI) 1	
V(PRI) 2	377.1	380.4	423.4	524.6	561.3	573.8	438.7	448.3	396.7	V(PRI) 2	
VTHETA PR1	-667.2	-675.6	-684.1	-709.9	-744.8	-779.7	-805.6	-814.0	-822.4	VTHETA PR1	
VTHETA PR2	-131.9	-169.3	-188.6	-226.5	-269.0	-308.5	-317.1	-301.4	-271.6	VTHETA PR2	
U 1	667.16	675.57	684.07	709.68	744.79	779.73	805.55	814.03	822.44	U 1	
U 2	669.06	676.82	684.58	707.67	738.90	769.95	793.26	801.03	808.82	U 2	
M 1	0.3955	0.4280	0.4332	0.4430	0.4456	0.4399	0.4270	0.3985	0.3269	M 1	
M 2	0.5612	0.5329	0.5452	0.5933	0.5991	0.5873	0.5331	0.5206	0.5294	M 2	
M(PRI) 1	0.7244	0.7502	0.7597	0.7851	0.8132	0.8368	0.8497	0.8411	0.8131	M(PRI) 1	
M(PRI) 2	0.3291	0.3316	0.3698	0.4611	0.4939	0.5041	0.4342	0.3891	0.3443	M(PRI) 2	
TURN(PRI)	36.439	28.790	28.732	30.070	28.139	25.764	20.352	19.466	23.086	TURN(PRI)	
UUBAR	0.1999	0.2575	0.2152	0.0814	0.0452	0.0548	0.1937	0.2374	0.2335	UUBAR	
LOSS PARA	0.0541	0.0675	0.0571	0.0226	0.0128	0.0156	0.0522	0.0621	0.0609	LOSS PARA	
DFAC	0.7215	0.7162	0.6661	0.5018	0.5390	0.5427	0.6420	0.7048	0.7709	DFAC	
EFFP	0.8123	0.7345	0.7659	1.071	0.9638	0.9662	0.8253	0.8151	0.9001	EFFP	
EFF	0.8034	0.7237	0.7561	0.9026	0.9619	0.9544	0.8172	0.8063	0.8947	EFF	
INCID	0.5.70	2.434	2.568	1.396	1.722	0.256	0.436	1.895	3.698	INCID	
DEVM	12.723	17.124	15.537	9.884	7.467	7.705	11.999	14.201	14.425	DEVM	
P 1	14.430	14.680	14.694	14.694	14.694	14.694	14.694	14.505	14.030	P 1	
P 2	15.296	19.460	19.650	21.650	20.930	21.010	20.320	20.180	20.340	P 2	
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1	
T 2	580.680	578.810	578.100	576.500	576.050	576.550	580.300	582.350	583.600	T 2	
STATOR B											
PCT SPAN	55.05	90.12	65.15	70.15	50.00	29.85	14.84	9.88	4.94	PCT SPAN	
DIA	32.203	33.556	33.913	34.981	36.422	37.859	38.930	39.285	39.637	DIA	
BETA 2	55.960	55.373	51.942	45.115	43.200	43.066	50.202	55.322	60.233	BETA 2	
BETA 2A	0.000	1.200	3.000	5.250	5.601	5.577	5.953	5.252	3.377	BETA 2A	
V 2	648.37	617.00	630.19	680.09	687.75	677.68	621.82	609.61	620.98	V 2	
V 2A	402.23	397.15	399.30	463.43	523.57	539.37	511.85	489.36	459.90	V 2A	
VZ 2	362.94	350.60	388.48	479.88	501.14	494.66	397.62	346.54	308.07	VZ 2	
VZ 2A	402.23	397.06	398.75	461.44	520.66	536.37	508.46	486.62	458.38	VZ 2A	
V-THETA 2	537.27	507.71	496.19	481.80	470.61	462.35	477.27	500.87	538.64	V-THETA 2	
V-THETA 2A	0.00	8.32	20.90	42.40	52.90	52.37	53.02	44.73	27.04	V-THETA 2A	
M 2	0.5662	0.5381	0.5507	0.5982	0.6056	0.5959	0.5418	0.5296	0.5394	M 2	
M 2A	0.3445	0.3407	0.3428	0.4000	0.4541	0.4682	0.4419	0.4210	0.3944	M 2A	
TURN(PRI)	55.560	54.173	48.941	39.859	37.380	37.448	44.188	50.003	56.787	TURN(PRI)	
UUBAR	0.1080	0.0057	0.0492	0.1087	0.0348	0.0156	-0.0544	-0.0228	0.1013	UUBAR	
LOSS PARA	0.0350	0.0019	0.0162	0.0367	0.0122	0.0057	-0.0024	-0.0087	0.0391	LOSS PARA	
DFAC	0.6479	0.6207	0.6151	0.5379	0.4534	0.4670	0.4364	0.4850	0.5796	DFAC	
EFFP	0.8424	0.9912	0.9263	0.8205	0.9278	0.9629	1.1492	1.0572	0.7978	EFFP	
INCID	0.589	0.172	0.471	1.439	0.948	0.667	6.830	11.394	15.704	INCID	
DEVM	13.031	14.054	15.734	17.583	17.919	13.280	19.456	19.053	17.523	DEVM	
P 2	15.290	19.460	19.650	20.930	20.930	21.010	20.320	20.180	20.340	P 2	
P 2A	19.470	19.440	19.470	20.070	20.770	20.940	20.520	20.260	19.970	P 2A	
T 2	580.680	578.810	578.100	576.500	576.050	576.550	580.300	582.350	583.600	T 2	
T 2A	580.680	578.810	578.100	576.500	576.050	576.550	580.300	582.350	583.600	T 2A	
UUBAR FS	0.0183	0.0193	0.0192	0.0746	0.0462	0.0513	0.0751	0.0795	0.1252	UUBAR FS	
P2 FS	19.434	20.280	20.005	20.387	20.985	21.180	20.834	20.569	20.439	P2 FS	
LOSS PARA FS	0.0099	0.0650	0.0438	0.0251	0.0161	0.0188	0.0281	0.0303	0.0483	LOSS PARA FS	

Table A-3. Blade Element Performance (Continued)

Stage C Rotor C - Stator B CALCULATIONS USING TRANSLATED VALUES PERCENT EQUIVALENT ROTOR SPEED = 110.37 EQUIVALENT ROTOR SPEED = 4646.56 EQUIVALENT WEIGHT FLOW = 101.79											
INLET	PCT SPAN	96.61	91.52	86.39	70.81	49.79	28.83	13.41	8.35	3.34	PCT SPAN
	DIA	33.139	33.570	34.006	35.328	37.113	38.892	40.202	40.631	41.056	DIA
	BETA 0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 0
	BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1
	V 0	415.71	415.71	415.71	415.71	415.71	415.71	415.71	415.71	415.71	V 0
	V 1	393.04	430.93	434.41	447.01	450.61	442.91	423.40	404.74	302.57	V 1
	VZ 0	415.71	415.71	415.71	415.70	415.68	415.64	415.60	415.58	415.57	VZ 0
	VZ 1	393.04	430.93	434.41	447.00	450.57	442.83	423.28	404.62	302.47	VZ 1
	V-THETA 0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 0
	V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1
	M 0	0.3776	0.3776	0.3776	0.3776	0.3776	0.3776	0.3776	0.3776	0.3776	M 0
	M 1	0.3565	0.3919	0.3952	0.4070	0.4104	0.4031	0.3848	0.3674	0.2730	M 1
	TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
	UUBAR	0.1917	0.0	0.0	0.0	0.0	0.0	0.0319	0.1154	0.5583	UUBAR
	DFAC	0.055	-0.037	-0.045	-0.075	-0.084	-0.065	-0.018	0.026	0.272	DFAC
	EFFP	-1.3994	1.0000	1.0000	1.0000	1.0000	1.0000	0.5538	-0.9133	-6.5492	EFFP
	INCID	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	INCID
	DEVM	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	DEVM
	P 0	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	P 0
	P 1	14.430	14.694	14.694	14.694	14.694	14.694	14.650	14.535	13.925	P 1
	T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
	T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR C ROTOR -L.E. ROTOR -T.E.	PCT SPAN	95.00	90.01	85.00	70.01	50.02	30.02	15.01	10.00	4.98	PCT SPAN
	DIA	33.235	33.621	34.006	35.163	36.705	38.247	39.405	39.791	40.178	DIA
	BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1
	BETA 2	57.189	57.039	53.919	46.807	44.679	45.283	55.174	60.183	65.347	BETA 2
	BETA(PR) 1	58.381	56.320	56.434	56.642	57.748	59.425	61.359	62.689	69.141	BETA(PR) 1
	BETA(PR) 2	20.574	27.195	27.595	26.377	28.783	32.762	42.564	42.935	45.625	BETA(PR) 2
	V 1	413.68	453.42	457.15	470.71	473.56	464.50	443.90	424.22	316.34	V 1
	V 2	645.52	609.38	617.80	667.30	680.67	667.15	594.37	606.94	610.47	V 2
	VZ 1	413.67	453.41	457.15	470.66	473.32	463.96	443.09	423.35	315.62	VZ 1
	VZ 2	349.79	331.54	363.84	456.69	483.78	468.98	339.13	301.56	254.48	VZ 2
	V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1
	V-THETA 2	542.53	511.29	499.29	486.44	478.39	473.64	487.46	526.17	554.49	V-THETA 2
	V(PR) 1	789.0	817.6	826.8	856.0	887.1	912.4	924.8	923.1	886.7	V(PR) 1
	V(PR) 2	373.6	372.7	410.5	509.9	552.3	558.4	461.1	412.6	364.5	V(PR) 2
	VTHETA PR1	-671.9	-680.4	-688.9	-714.9	-750.1	-785.3	-811.3	-819.8	-828.3	VTHETA PR1
	VTHETA PR2	-131.3	-170.3	-190.2	-226.5	-265.8	-301.8	-311.4	-280.6	-260.1	VTHETA PR2
	U 1	671.91	680.39	688.94	714.94	750.10	785.29	811.29	819.83	828.30	U 1
	U 2	673.83	681.64	689.46	712.91	744.17	775.43	798.91	806.74	814.58	U 2
	M 1	0.3757	0.4130	0.4165	0.4293	0.4320	0.4235	0.4041	0.3856	0.2857	M 1
	M 2	0.5631	0.5306	0.5387	0.5855	0.5981	0.5849	0.5156	0.5262	0.5288	M 2
	M(PR) 1	0.7167	0.7448	0.7534	0.7807	0.8093	0.8318	0.8418	0.8391	0.8007	M(PR) 1
	M(PR) 2	0.3259	0.3246	0.3580	0.4473	0.4854	0.4896	0.4001	0.3577	0.3158	M(PR) 2
	TURN(PR)	37.806	29.126	28.839	30.268	28.972	26.682	18.831	19.796	23.574	TURN(PR)
	UUBAR	0.1934	0.2577	0.2185	0.0943	0.0543	0.0772	0.2346	0.2799	0.2490	UUBAR
	LOSS PARA	0.0523	0.0670	0.0574	0.0260	0.0153	0.0219	0.0604	0.0725	0.0624	LOSS PARA
	DFAC	0.7253	0.7272	0.6824	0.5789	0.5504	0.5619	0.6842	0.7531	0.8111	DFAC
	EFFP	0.9234	0.7383	0.7651	0.8949	0.9557	0.9458	0.7898	0.8086	0.9064	EFFP
	EFF	0.8150	0.7274	0.7551	0.8898	0.9533	0.9429	0.7801	0.7992	0.9011	EFF
	INCID	6.539	4.042	3.743	2.585	1.685	1.365	1.921	2.819	8.501	INCID
	DEVM	12.825	17.897	16.676	10.673	8.096	7.898	15.005	14.795	16.741	DEVM
	P 1	14.430	14.694	14.694	14.694	14.694	14.694	14.650	14.535	13.925	P 1
	P 2	20.075	19.595	19.740	20.590	21.050	21.090	20.180	20.370	20.460	P 2
	T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
	T 2	581.660	579.820	579.150	577.690	577.550	578.530	582.410	584.400	585.590	T 2
STATOR B STATOR-L.E. STATOR-T.E.	PCT SPAN	95.05	90.12	85.15	70.15	50.00	29.85	14.84	9.88	4.94	PCT SPAN
	DIA	33.203	33.556	33.910	34.981	36.420	37.859	38.930	39.285	39.637	DIA
	BETA 2	56.462	56.261	53.226	46.409	44.190	44.620	54.143	58.824	63.543	BETA 2
	BETA 2A	-0.330	0.860	2.680	4.600	6.161	5.752	5.672	4.292	1.811	BETA 2A
	V 2	651.01	615.05	623.64	672.30	687.56	676.17	603.36	616.97	621.36	V 2
	V 2A	399.74	389.57	386.06	445.66	511.85	527.85	491.37	470.16	448.33	V 2A
	VZ 2	359.68	341.60	373.35	463.51	492.81	480.89	353.13	319.15	276.66	VZ 2
	VZ 2A	399.74	389.53	385.64	444.17	508.69	524.76	488.35	468.18	447.40	VZ 2A
	V-THETA 2	542.62	511.46	499.53	486.89	479.07	474.55	488.60	527.48	555.95	V-THETA 2
	V-THETA 2A	-2.30	5.85	18.05	35.74	54.91	52.86	48.50	35.14	14.14	V-THETA 2A
	M 2	0.5682	0.5358	0.5641	0.5902	0.6046	0.5934	0.5239	0.5354	0.5388	M 2
	M 2A	0.3421	0.3337	0.3308	0.3838	0.4429	0.4570	0.4227	0.4032	0.3835	M 2A
	TURN(PR)	56.792	55.401	50.545	41.803	38.009	38.826	48.411	54.469	61.665	TURN(PR)
	UUBAR	0.1115	0.0149	0.0597	0.1133	0.0473	0.0201	-0.0959	0.0277	0.1036	UUBAR
	LOSS PARA	0.0361	0.0049	0.0196	0.0383	0.0156	0.0073	-0.0631	0.0106	0.0400	LOSS PARA
	DFAC	0.6570	0.6352	0.6355	0.5649	0.4737	0.4491	0.4631	0.5447	0.6173	DFAC
	EFFP	0.8394	0.9776	0.9128	0.8204	0.9073	0.9550	1.2531	0.9408	0.8049	EFFP
	INCID	9.491	10.060	7.755	2.734	1.938	2.220	10.772	14.901	19.020	INCID
	DEVM	12.701	13.714	15.414	16.933	18.279	18.455	19.175	18.094	15.960	DEVM
	P 2	20.075	19.595	19.740	20.590	21.050	21.090	20.180	20.370	20.460	P 2
	P 2A	19.635	19.543	19.525	20.100	20.832	21.000	20.510	20.270	20.080	P 2A
	T 2	581.660	579.820	579.150	577.690	577.550	578.530	582.410	584.400	585.590	T 2
	T 2A	581.660	579.820	579.150	577.690	577.550	578.530	582.410	584.400	585.590	T 2A
	UUBAR FS	0.1317	0.1598	0.1484	0.0997	0.0534	0.0539	0.0679	0.0933	0.1382	UUBAR FS
	P2 FS	20.262	20.192	20.112	20.522	21.080	21.250	20.785	20.639	20.407	P2 FS
	LOSS PARA FS	0.0491	0.0525	0.0487	0.0337	0.0187	0.0193	0.0255	0.0364	0.0533	LOSS PARA FS

Table A-3. Blade Element Performance (Continued)

Stage C Rotor C - Stator B												
CALCULATIONS USING TRANSLATED VALUES												
PERCENT EQUIVALENT ROTOR SPEED = 100.16 EQUIVALENT ROTOR SPEED = 4216.66 EQUIVALENT WEIGHT FLOW = 120.83												
INLET												
PCT SPAN	96.61	91.52	86.39	70.81	49.75	28.83	13.41	8.35	3.34		PCT SPAN	
DIA	23.138	33.570	34.006	35.328	37.113	38.892	40.202	40.631	41.056		DIA	
BETA 0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		BETA 0	
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		BETA 1	
V 0	512.45	512.45	512.45	512.45	512.45	512.45	512.45	512.45	512.45		V 0	
V 1	488.21	528.14	529.92	530.82	528.91	521.63	513.54	493.51	426.57		V 1	
VZ 0	512.44	512.45	512.45	512.44	512.40	512.35	512.30	512.29	512.27		VZ 0	
VZ 1	488.21	528.14	529.92	530.80	528.86	521.53	513.40	493.76	426.42		VZ 1	
V-THETA 0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		V-THETA 0	
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		V-THETA 1	
M 0	0.4690	0.4690	0.4690	0.4690	0.4690	0.4690	0.4690	0.4690	0.4690		M 0	
M 1	0.4459	0.4840	0.4857	0.4866	0.4848	0.4778	0.4701	0.4513	0.3878		M 1	
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		TURN	
UUBAR	0.1975	0.0112	0.0	0.0	0.0	0.0	0.0209	0.0944	0.3513		UUBAR	
DFAC	0.047	-0.031	-0.034	-0.036	-0.032	-0.018	-0.002	0.036	0.168		DFAC	
EFFP	-1.0265	0.8594	1.0000	0.9999	1.0000	0.9997	0.1825	-4.6127	-13.7456		EFFP	
INCID	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001		INCID	
DEVM	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000		DEVM	
P 0	14.654	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694		P 0	
P 1	14.288	14.671	14.694	14.694	14.694	14.694	14.651	14.500	13.972		P 1	
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700		T 0	
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700		T 1	
ROTOR C												
PCT SPAN	55.00	90.01	85.00	70.01	50.02	30.02	15.01	10.00	4.98		PCT SPAN	
DIA	32.235	33.621	34.006	35.163	36.705	38.247	39.405	39.791	40.178		DIA	
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		BETA 1	
BETA 2	37.774	33.466	30.880	30.552	30.193	29.242	28.312	29.266	33.364		BETA 2	
BETA(PIR) 1	49.742	47.845	48.101	49.106	50.646	52.401	53.739	55.101	59.273		BETA(PIR) 1	
BETA(PIR) 2	27.441	27.843	26.445	27.116	31.252	35.305	36.530	38.692	44.363		BETA(PIR) 2	
V 1	516.36	558.98	560.94	561.93	558.49	549.42	541.02	520.05	447.82		V 1	
V 2	557.75	623.40	645.54	681.62	657.70	636.50	645.02	617.95	542.18		V 2	
VZ 1	516.34	558.98	560.94	561.88	558.21	548.77	540.04	518.98	446.79		VZ 1	
VZ 2	472.48	519.92	571.19	586.89	568.10	554.95	566.63	537.76	451.70		VZ 2	
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		V-THETA 1	
V-THETA 2	366.15	343.55	341.58	346.42	330.56	310.49	305.25	301.37	297.44		V-THETA 2	
V(PIR) 1	799.0	832.9	840.0	858.3	880.5	899.8	913.6	907.7	875.0		V(PIR) 1	
V(PIR) 2	532.4	588.0	638.0	659.5	664.9	680.9	706.4	690.3	633.0		V(PIR) 2	
VTHETA PR1	-609.7	-617.4	-625.2	-648.8	-680.7	-712.6	-736.2	-744.0	-751.7		VTHETA PR1	
VTHETA PR2	-245.3	-274.6	-284.1	-300.5	-344.8	-393.0	-419.7	-430.7	-441.8		VTHETA PR2	
U 1	609.75	617.44	625.20	648.79	680.70	712.63	736.23	743.98	751.66		U 1	
U 2	611.48	618.58	625.67	646.95	675.32	703.69	724.99	732.10	739.21		U 2	
M 1	0.4727	0.5138	0.5157	0.5166	0.5133	0.5045	0.4964	0.4763	0.4077		M 1	
M 2	0.5312	0.5555	0.5966	0.6124	0.5890	0.5694	0.5768	0.5504	0.4797		M 2	
M(PIR) 1	0.7315	0.7655	0.7721	0.7891	0.8092	0.8263	0.8383	0.8313	0.7967		M(PIR) 1	
M(PIR) 2	0.4731	0.5243	0.5719	0.5926	0.5955	0.6047	0.6317	0.6149	0.5601		M(PIR) 2	
TURN(PIR)	22.300	20.001	21.657	21.993	19.402	17.114	17.236	16.442	14.953		TURN(PIR)	
UUBAR	0.2551	0.2241	0.1415	0.1177	0.1361	0.1358	0.1021	0.1247	0.1649		UUBAR	
LOSS PARA	0.0654	0.0580	0.0375	0.0322	0.0375	0.0374	0.0287	0.0344	0.0423		LOSS PARA	
DFAC	0.4662	0.4149	0.3610	0.3556	0.3653	0.3591	0.3427	0.3560	0.3974		DFAC	
EFFP	0.6608	0.6484	0.7871	0.8754	0.8174	0.7588	0.8480	0.7840	0.7401		EFFP	
EFF	0.6529	0.6405	0.7814	0.8717	0.8124	0.7534	0.8436	0.7780	0.7333		EFF	
INCID	-2.100	-4.433	-4.585	-4.950	-5.417	-5.661	-5.704	-4.776	-1.381		INCID	
DEVM	19.652	18.545	15.525	11.413	10.564	10.439	9.974	10.554	15.479		DEVM	
P 1	14.288	14.671	14.694	14.694	14.694	14.694	14.651	14.500	13.972		P 1	
P 2	16.825	17.155	17.680	17.995	17.825	17.710	17.920	17.580	16.730		P 2	
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700		T 1	
T 2	556.680	555.710	554.730	554.170	554.930	554.520	555.120	556.420	556.060		T 2	
STATOR B												
PCT SPAN	55.05	90.12	85.15	70.15	50.00	29.85	14.84	9.88	4.94		PCT SPAN	
DIA	32.203	33.556	33.910	34.981	36.420	37.859	39.930	39.285	39.637		DIA	
BETA 2	37.426	32.136	30.542	30.318	29.910	28.874	27.868	28.795	12.834		BETA 2	
BETA 2A	4.550	4.920	5.820	6.091	6.621	6.622	6.624	6.344	5.923		BETA 2A	
V 2	602.59	629.43	672.51	687.00	664.25	645.34	655.80	628.55	551.21		V 2	
V 2A	616.63	666.83	681.47	705.26	715.78	725.09	742.00	733.31	683.65		V 2A	
VZ 2	478.54	527.07	579.19	592.95	575.44	564.38	578.64	549.68	462.15		VZ 2	
VZ 2A	614.68	664.37	677.94	701.20	710.72	719.66	736.13	727.80	678.54		VZ 2A	
V-THETA 2	366.21	344.06	341.74	346.73	331.03	311.25	305.46	302.12	298.22		V-THETA 2	
V-THETA 2A	48.92	57.19	69.10	74.82	82.50	83.55	85.48	80.91	70.44		V-THETA 2A	
M 2	0.5358	0.5616	0.6033	0.6177	0.5953	0.5774	0.5871	0.5604	0.4881		M 2	
M 2A	0.5490	0.5973	0.6120	0.6354	0.6452	0.6545	0.6707	0.6614	0.6133		M 2A	
TURN(PIR)	32.875	28.216	24.722	24.222	23.272	22.223	21.195	22.394	26.841		TURN(PIR)	
UUBAR	0.2662	0.1724	0.2467	0.2136	0.1519	0.1282	0.1663	0.1777	0.1789		UUBAR	
LOSS PARA	0.0839	0.0561	0.0808	0.0719	0.0521	0.0467	0.0625	0.0675	0.0688		LOSS PARA	
DFAC	0.1472	0.0895	0.1204	0.1079	0.0549	0.0067	-0.0032	-0.0309	-0.0792		DFAC	
EFFP	5.9248	2.2457	9.0815	4.4454	1.8184	1.4249	1.5188	1.4325	1.2998		EFFP	
INCID	-9.546	-13.065	-14.928	-13.357	-12.339	-13.513	-15.493	-15.125	-11.700		INCID	
DEVM	17.581	17.774	18.554	18.424	18.739	19.325	20.125	20.143	20.066		DEVM	
P 2	16.825	17.155	17.680	17.995	17.825	17.710	17.920	17.580	16.730		P 2	
P 2A	16.048	16.565	16.729	17.123	17.248	17.251	17.300	16.980	16.280		P 2A	
T 2	556.680	555.710	554.730	554.170	554.930	554.520	555.120	556.420	556.060		T 2	
T 2A	556.680	555.710	554.730	554.170	554.930	554.520	555.140	556.420	556.060		T 2A	
UUBAR FS	0.2620	0.2002	0.2281	0.2480	0.2096	0.1888	0.1572	0.1765	0.3316		UUBAR FS	
P2 FS	16.832	17.270	17.587	18.182	18.102	17.978	17.880	17.575	17.309		P2 FS	
LOSS PARA FS	0.0844	0.0651	0.0738	0.0834	0.0732	0.0687	0.0632	0.0670	0.1275		LOSS PARA FS	

Table A-3. Blade Element Performance (Continued)

Stage C Rotor C - Stator B CALCULATIONS USING TRANSLATED VALUES PERCENT EQUIVALENT ROTOR SPEED = 100.35 EQUIVALENT ROTOR SPEED = 4224.62 EQUIVALENT WEIGHT FLOW = 114.12											
IMLP	PCT SPAN	96.61	91.52	86.39	70.81	49.79	28.83	13.41	8.35	3.34	PCT SPAN
	DIA	33.138	33.570	34.006	35.328	37.113	38.892	40.202	40.631	41.056	DIA
	BETA 0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 0
	BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1
	V 0	476.96	476.96	476.96	476.96	476.96	476.96	476.96	476.96	476.96	V 0
	V 1	448.31	440.81	495.45	499.53	498.85	491.63	477.17	462.20	404.31	V 1
	VZ 0	476.96	476.96	476.96	476.95	476.92	476.87	476.83	476.81	476.79	VZ 0
	VZ 1	448.38	490.81	495.45	499.52	498.81	491.54	477.03	462.05	404.17	VZ 1
	V-THETA 0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 0
	V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1
	M 0	0.4353	0.4353	0.4353	0.4353	0.4353	0.4353	0.4353	0.4353	0.4353	M 0
	M 1	0.4083	0.4484	0.4528	0.4567	0.4541	0.4492	0.4354	0.4213	0.3670	M 1
	TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
	UUBAR	0.2024	0.0145	0.0	0.0	0.0	0.0	0.0329	0.0903	0.3284	UUBAR
	DFAC	0.060	-0.029	-0.039	-0.047	-0.042	-0.031	-0.000	0.031	0.152	DFAC
	EFFP	-1.5967	0.8154	0.9999	0.9999	0.9997	0.9997	0.0274	-2.6786	-9.8037	EFFP
	INCID	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	INCID
	DEVM	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	DEVM
	P 0	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	P 0
	P 1	14.331	14.668	14.694	14.694	14.694	14.694	14.635	14.532	14.105	P 1
	T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
	T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR C	PCT SPAN	95.00	90.01	85.00	70.01	50.02	30.02	15.01	10.00	4.98	PCT SPAN
ROTOR -L.E.	DIA	33.235	33.621	34.006	35.163	36.705	38.247	39.405	39.791	40.178	DIA
ROTOR -T.E.	BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1
	BETA 2	46.200	43.265	39.257	37.168	36.734	36.140	36.819	40.596	45.730	BETA 2
	BETA(PRI) 1	52.244	50.050	50.128	50.934	52.502	54.128	55.833	56.966	60.673	BETA(PRI) 1
	BETA(PRI) 2	26.230	26.688	25.489	25.344	29.446	33.160	35.774	39.652	45.329	BETA(PRI) 2
	V 1	473.13	518.16	523.22	527.66	523.54	516.90	501.58	485.68	424.04	V 1
	V 2	576.45	589.43	625.64	660.43	644.41	631.70	618.71	574.06	521.66	V 2
	VZ 1	473.11	518.15	523.22	527.61	523.28	516.30	500.66	484.68	423.07	VZ 1
	VZ 2	398.98	429.22	484.44	526.20	516.16	509.54	494.41	435.10	363.52	VZ 2
	V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1
	V-THETA 2	416.05	403.98	395.90	398.95	385.20	372.10	370.12	372.87	372.90	V-THETA 2
	VIPRI 1	772.7	806.9	816.2	837.2	859.8	881.4	892.0	889.7	864.3	VIPRI 1
	VIPRI 2	444.8	480.4	536.7	582.3	593.1	609.4	610.5	566.2	518.0	VIPRI 2
	VTHETA PRI	-610.9	-618.6	-626.4	-650.0	-682.0	-714.0	-737.6	-745.4	-753.1	VTHETA PRI
	VTHETA PR2	-196.6	-215.8	-231.0	-249.2	-291.4	-332.9	-356.2	-360.6	-367.7	VTHETA PR2
	U 1	610.90	618.60	626.38	650.02	681.98	713.98	737.62	745.38	753.08	U 1
	U 2	612.64	619.74	626.85	648.17	676.59	705.02	726.36	733.48	740.61	U 2
	M 1	0.4316	0.4745	0.4793	0.4836	0.4796	0.4733	0.4586	0.4435	0.3854	M 1
	M 2	0.5087	0.5214	0.5557	0.5886	0.5731	0.5615	0.5482	0.5059	0.4575	M 2
	MIPRI 1	0.7049	0.7389	0.7477	0.7673	0.7876	0.8070	0.8156	0.8124	0.7856	MIPRI 1
	MIPRI 2	0.3925	0.4249	0.4767	0.5190	0.5275	0.5417	0.5409	0.4989	0.4543	MIPRI 2
	TURNIPRI	26.013	23.362	24.639	25.592	23.063	20.985	20.086	17.349	15.390	TURNIPRI
	UUBAR	0.1868	0.2033	0.1149	0.0496	0.0550	0.0549	0.0727	0.1455	0.1656	UUBAR
	LOSS PARA	0.0484	0.0531	0.0307	0.0138	0.0154	0.0155	0.0206	0.0396	0.0417	LOSS PARA
	DFAC	0.5800	0.5512	0.4862	0.4508	0.4539	0.4500	0.4595	0.5107	0.5540	DFAC
	EFFP	0.7845	0.7554	0.8608	0.9746	0.9637	0.9815	0.9392	0.8359	0.8224	EFFP
	EFF	0.7777	0.7481	0.8562	0.9736	0.9624	0.9809	0.9369	0.8301	0.8162	EFF
	INCID	0.402	-2.228	-2.562	-3.123	-3.562	-3.934	-3.609	-2.910	-0.051	INCID
	DEVM	18.481	17.390	14.570	9.641	8.759	8.255	8.219	11.513	16.445	DEVM
	P 1	14.331	14.668	14.694	14.694	14.694	14.694	14.635	14.532	14.105	P 1
	P 2	17.875	18.035	18.530	19.115	19.105	19.125	19.045	18.500	17.925	P 2
	T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
	T 2	562.170	560.870	560.210	560.280	560.680	560.060	561.970	563.320	563.740	T 2
STATOR B	PCT SPAN	95.05	90.12	85.15	70.15	50.00	29.85	14.84	9.88	4.94	PCT SPAN
STATOR -L.E.	DIA	33.203	33.556	33.910	34.981	36.420	37.859	38.930	39.285	39.637	DIA
STATOR -T.E.	BETA 2	45.747	42.794	38.830	36.883	36.377	35.681	36.240	39.933	44.938	BETA 2
	BETA 2A	1.420	1.620	3.640	5.660	5.031	5.111	5.562	5.432	5.283	BETA 2A
	V 2	580.97	594.85	631.72	665.41	650.73	639.87	628.54	583.27	530.13	V 2
	V 2A	443.88	468.31	494.27	558.94	578.68	581.23	571.11	543.02	505.74	V 2A
	VZ 2	405.42	436.50	492.10	532.17	523.66	519.20	506.15	446.53	374.69	VZ 2
	VZ 2A	443.74	468.12	493.27	556.15	576.22	578.44	567.71	539.83	502.81	VZ 2A
	V-THETA 2	416.12	404.12	396.09	399.31	385.75	372.82	370.99	373.80	373.88	V-THETA 2
	V-THETA 2A	11.00	13.24	31.38	55.12	50.72	51.74	55.29	51.33	46.49	V-THETA 2A
	M 2	0.5129	0.5264	0.5614	0.5933	0.5791	0.5692	0.5575	0.5144	0.4652	M 2
	M 2A	0.3876	0.4101	0.4340	0.4933	0.5114	0.5141	0.5038	0.4773	0.4430	M 2A
	TURN(PRI)	44.327	41.173	35.190	31.217	31.327	30.530	30.618	34.432	39.576	TURN(PRI)
	UUBAR	0.0807	0.0654	0.1323	0.0839	0.0201	0.0292	0.0770	0.0236	-0.0417	UUBAR
	LOSS PARA	0.0261	0.0213	0.0435	0.0283	0.0070	0.0106	0.0290	0.0090	-0.0160	LOSS PARA
	DFAC	0.4617	0.4274	0.4079	0.3357	0.2928	0.2766	0.2826	0.2817	0.2863	DFAC
	EFFP	0.8232	0.8442	0.6947	0.7494	0.9161	0.8524	0.6080	0.8416	1.4282	EFFP
	INCID	-1.224	-3.408	-6.640	-6.792	-5.874	-6.716	-7.130	-3.998	0.397	INCID
	DEVM	14.451	14.474	16.374	17.994	17.149	17.815	19.065	19.232	19.427	DEVM
	P 2	17.875	18.035	18.530	19.115	19.105	19.125	19.045	18.500	17.925	P 2
	P 2A	17.638	17.832	18.058	18.775	19.027	19.015	18.766	18.428	18.028	P 2A
	T 2	562.170	560.870	560.210	560.280	560.680	560.060	561.970	563.320	563.740	T 2
	T 2A	562.180	560.880	560.210	560.290	560.680	560.070	561.980	563.320	563.730	T 2A
	UUBAR FS	0.1581	0.1315	0.1186	0.0862	0.0565	0.0596	0.0864	0.1055	0.1008	UUBAR FS
	P2 FS	18.145	18.350	18.475	19.125	19.235	19.247	19.082	18.780	18.635	P2 FS
	LOSS PARA FS	0.0311	0.0493	0.0369	0.0290	0.0196	0.0216	0.0325	0.0402	0.0649	LOSS PARA FS

Table A-3. Blade Element Performance (Continued)

Stage C Rotor C - Stator B											
CALCULATIONS USING TRANSLATED VALUES											
PERCENT EQUIVALENT ROTOR SPEED = 99.48 EQUIVALENT ROTOR SPEED = 4188.04 EQUIVALENT WEIGHT FLOW = 102.98											
INLET											
PCT SPAN	96.61	91.52	86.39	70.81	49.79	28.83	13.41	8.35	3.34	PCT SPAN	
DIA	33.138	33.570	34.005	35.328	37.113	38.892	40.202	40.631	41.056	DIA	
BETA 0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 0	
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1	
V 0	421.42	421.42	421.42	421.42	421.42	421.42	421.42	421.42	421.42	V 0	
V 1	391.93	427.37	435.10	443.19	447.43	432.08	418.32	396.66	339.90	V 1	
VZ 0	421.42	421.42	421.42	421.41	421.39	421.34	421.30	421.29	421.27	VZ 0	
VZ 1	351.93	427.37	435.10	443.18	447.44	432.00	418.20	396.54	339.79	VZ 1	
V-THETA 0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 0	
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1	
M 0	0.3830	0.3830	0.3830	0.3830	0.3830	0.3830	0.3830	0.3830	0.3830	M 0	
M 1	0.3555	0.3886	0.3958	0.4034	0.4074	0.3930	0.3801	0.3599	0.3073	M 1	
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN	
UUBAR	0.2008	0.0240	0.0	0.0	0.0	0.0	0.0	0.1089	0.3705	UUBAR	
DFAC	0.070	-0.014	-0.032	-0.052	-0.062	-0.025	-0.007	0.059	0.193	DFAC	
EFFP	-2.4371	0.5578	0.9994	0.9996	0.9999	0.9995	1.0003	10.1296	-57.9601	EFFP	
INCID	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	INCID	
DEVM	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	DEVM	
P 0	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	P 0	
P 1	14.410	14.660	14.694	14.694	14.694	14.694	14.694	14.540	14.170	P 1	
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0	
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1	
ROTOR C											
PCT SPAN	95.00	90.01	85.00	70.01	50.02	30.02	15.01	10.00	4.98	PCT SPAN	
DIA	33.235	33.621	34.006	35.163	36.765	38.247	39.405	39.791	40.178	DIA	
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1	
BETA 2	52.350	51.303	47.455	42.724	42.100	41.299	44.036	48.461	55.824	BETA 2	
BETA(PR) 1	55.741	53.754	53.595	54.095	55.196	57.415	59.097	60.691	64.575	BETA(PR) 1	
BETA(PR) 2	21.959	25.459	25.228	24.688	28.852	33.325	36.740	41.387	45.963	BETA(PR) 2	
V 1	412.50	449.59	457.90	466.60	470.20	452.92	438.48	415.67	355.70	V 1	
V 2	585.08	569.86	588.85	632.42	621.80	606.31	585.45	546.30	521.93	V 2	
VZ 1	412.48	449.59	457.89	466.55	469.96	452.39	437.68	414.81	354.89	VZ 1	
VZ 2	357.39	356.28	398.15	464.53	461.14	455.03	420.27	361.76	292.86	VZ 2	
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1	
V-THETA 2	463.24	444.76	433.83	429.02	416.67	399.73	406.36	408.34	431.32	V-THETA 2	
VIPR) 1	732.7	760.4	771.5	795.6	823.5	840.3	852.6	847.8	827.0	VIPR) 1	
VIPR) 2	385.3	394.6	440.1	511.4	526.8	545.3	525.4	483.0	422.0	VIPR) 2	
VTHETA PR1	-605.6	-613.2	-621.0	-644.4	-676.1	-707.8	-731.2	-738.9	-746.6	VTHETA PR1	
VTHETA PR2	-144.1	-169.6	-187.6	-213.5	-254.1	-299.2	-313.7	-318.8	-302.9	VTHETA PR2	
U 1	605.61	613.25	620.95	644.39	676.08	707.80	731.27	738.93	746.56	U 1	
U 2	607.33	614.38	621.43	642.56	670.73	698.91	720.07	727.13	734.20	U 2	
M 1	0.3746	0.4094	0.4172	0.4254	0.4289	0.4125	0.3990	0.3776	0.3219	M 1	
M 2	0.5139	0.5004	0.5184	0.5597	0.5498	0.5353	0.5147	0.4780	0.4553	M 2	
MIPR) 1	0.6655	0.6924	0.7030	0.7254	0.7511	0.7654	0.7758	0.7702	0.7484	MIPR) 1	
MIPR) 2	0.3385	0.3465	0.3875	0.4526	0.4698	0.4914	0.4619	0.4226	0.3681	MIPR) 2	
TURN(PR)	33.782	28.295	28.367	29.410	26.351	24.109	22.388	19.344	18.663	TURN(PR)	
UUBAR	0.1724	0.2221	0.1631	0.0547	0.0561	0.0602	0.1214	0.1718	0.2001	UUBAR	
LOSS PARA	0.0462	0.0587	0.0437	0.0153	0.0158	0.0170	0.0340	0.0456	0.0499	LOSS PARA	
DFAC	0.6569	0.6523	0.5962	0.5229	0.5226	0.5105	0.5491	0.5993	0.6750	DFAC	
EFFP	0.8086	0.7458	0.7982	0.9453	0.9537	0.9488	0.8772	0.8119	0.8364	EFFP	
EFF	0.8015	0.7373	0.7912	0.9430	0.9518	0.9467	0.8723	0.8049	0.8299	EFF	
INCID	3.899	1.476	0.905	0.038	-0.888	-0.645	-0.343	0.819	3.929	INCID	
DEVM	14.205	16.161	14.309	8.984	8.165	8.460	9.184	13.247	17.079	DEVM	
P 1	14.410	14.660	14.694	14.694	14.694	14.694	14.694	14.540	14.170	P 1	
P 2	18.630	18.470	18.740	19.450	19.500	19.460	19.310	18.870	18.640	P 2	
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1	
T 2	567.980	566.700	565.880	564.580	564.590	564.490	566.970	568.530	569.630	T 2	
STATOR B											
PCT SPAN	95.05	90.12	85.15	70.15	50.00	29.85	14.84	9.88	4.94	PCT SPAN	
DIA	33.203	33.556	33.910	34.981	36.420	37.859	38.930	39.285	39.637	DIA	
BETA 2	51.784	50.697	46.921	42.397	41.695	40.774	43.334	47.632	54.707	BETA 2	
BETA 2A	0.980	1.280	3.070	5.870	5.301	5.372	5.063	5.533	5.413	BETA 2A	
V 2	589.70	574.96	594.25	636.94	627.58	613.84	594.29	554.75	530.38	V 2	
V 2A	403.27	406.72	418.94	470.62	505.66	523.08	508.76	487.70	456.50	V 2A	
VZ 2	364.80	364.19	405.87	470.32	468.41	464.42	431.71	373.38	306.12	VZ 2	
VZ 2A	403.21	406.61	418.33	468.10	503.30	520.35	505.65	484.75	453.75	VZ 2A	
V-THETA 2	463.32	444.91	434.05	429.41	417.27	400.51	407.31	409.36	432.46	V-THETA 2	
V-THETA 2A	6.90	9.09	22.44	48.13	46.70	48.93	50.14	46.95	42.99	V-THETA 2A	
M 2	0.5182	0.5051	0.5234	0.5640	0.5552	0.5424	0.5229	0.4857	0.4630	M 2	
M 2A	0.3494	0.3529	0.3640	0.4108	0.4426	0.4585	0.4444	0.4247	0.3963	M 2A	
TURN(PR)	50.804	49.417	43.850	36.521	36.374	35.361	37.608	42.029	49.220	TURN(PR)	
UUBAR	0.0722	0.0061	0.0203	0.0127	0.0136	-0.0227	0.0116	-0.0501	-0.0385	UUBAR	
LOSS PARA	0.0234	0.0020	0.0204	0.0346	0.0048	-0.0083	0.0044	-0.0191	-0.0148	LOSS PARA	
DFAC	0.5667	0.5402	0.5234	0.4644	0.4030	0.3589	0.3726	0.3722	0.4249	DFAC	
EFFP	0.8768	0.9896	0.8884	0.7978	0.9658	1.0722	0.9566	1.1996	1.1320	EFFP	
INCID	4.813	4.496	1.453	-1.279	-0.557	-1.625	-0.040	3.700	10.171	INCID	
DEVM	14.011	14.134	15.804	18.203	17.419	19.075	19.166	19.333	19.556	DEVM	
P 2	18.630	18.470	18.740	19.450	19.500	19.460	19.310	18.870	18.640	P 2	
P 2A	18.405	18.452	18.542	19.062	19.450	19.540	19.272	19.011	18.738	P 2A	
T 2	567.980	566.700	565.880	564.580	564.590	564.490	566.970	568.530	569.630	T 2	
T 2A	567.980	566.690	565.880	564.580	564.590	564.500	567.010	568.530	569.650	T 2A	
UUBAR FS	0.1548	0.1488	0.1160	0.0591	0.0364	0.0386	0.0615	0.0646	0.1541	UUBAR FS	
P2 FS	18.935	18.965	18.935	19.275	19.587	19.685	19.485	19.215	19.220	P2 FS	
LOSS PARA FS	0.0501	0.0487	0.0381	0.0199	0.0128	0.0141	0.0233	0.0246	0.0592	LOSS PARA FS	

Table A-3. Blade Element Performance (Continued)

Stage C Rotor C - Stator B											
CALCULATIONS USING TRANSLATED VALUES											
PERCENT EQUIVALENT ROTOR SPEED = 99.82 EQUIVALENT ROTOR SPEED = 4202.52 EQUIVALENT WEIGHT FLOW = 98.54											
INLET											
PCT SPAN	56.61	91.52	86.39	70.81	49.79	28.83	13.41	8.35	3.34	PCT SPAN	
DIA	33.133	33.570	34.066	35.328	37.113	38.892	40.202	40.631	41.056	DIA	
BETA 0	C.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 0	
BETA 1	C.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1	
V 0	400.28	400.28	400.28	400.28	400.28	400.28	400.28	400.28	400.28	V 0	
V 1	365.67	402.39	404.66	415.90	418.58	410.83	398.03	375.88	318.53	V 1	
VZ 0	400.27	400.28	400.28	400.27	400.24	400.20	400.17	400.15	400.14	VZ 0	
VZ 1	365.67	402.39	404.66	415.89	418.54	410.75	397.92	375.76	318.42	VZ 1	
V-THETA 0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 0	
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1	
M 0	0.3632	0.3632	0.3632	0.3632	0.3632	0.3632	0.3632	0.3632	0.3632	M 0	
M 1	0.3311	0.3652	0.3673	0.3778	0.3803	0.3731	0.3612	0.3406	0.2877	M 1	
TURN	C.0	C.0	C.0	C.0	C.0	C.0	C.0	C.0	C.0	TURN	
UUBAR	0.1828	0.0	0.0	C.0	C.0	0.0	0.0	0.1047	0.3702	UUBAR	
DFAC	0.086	-0.005	-0.011	-0.039	-0.046	-0.026	0.006	0.061	-0.204	DFAC	
EFFP	-18.9973	0.9999	1.0003	1.0002	0.9999	1.0002	0.9982	6.2608	36.4932	EFFP	
INCID	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	INCID	
DEVM	-C.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	DEVM	
P 0	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	P 0	
P 1	14.460	14.694	14.694	14.694	14.694	14.694	14.694	14.560	14.220	P 1	
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0	
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1	
ROTOR C											
PCT SPAN	55.00	90.01	85.00	70.01	50.02	30.02	15.01	10.00	4.98	PCT SPAN	
DIA	33.235	33.621	34.000	35.163	36.705	38.247	39.405	39.791	40.178	DIA	
BETA 1	C.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1	
BETA 2	54.743	54.087	50.183	45.142	43.967	43.924	49.101	54.492	60.121	BETA 2	
BETA(PIR) 1	57.684	55.503	55.687	55.933	57.092	58.823	60.440	62.091	66.075	BETA(PIR) 1	
BETA(PIR) 2	21.078	26.822	25.883	25.562	29.194	32.488	39.026	42.391	44.485	BETA(PIR) 2	
V 1	384.42	422.88	425.25	437.28	439.23	430.24	416.91	393.56	333.12	V 1	
V 2	586.33	557.17	578.04	616.36	614.15	609.20	562.31	543.38	543.65	V 2	
VZ 1	384.41	422.88	425.25	437.24	439.02	429.74	416.15	392.75	332.36	VZ 1	
VZ 2	338.57	326.81	370.13	434.70	441.83	438.36	367.72	315.26	270.59	VZ 2	
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1	
V-THETA 2	478.94	451.26	443.99	436.86	426.18	422.19	424.52	441.86	470.97	V-THETA 2	
V(PIR) 1	719.1	746.7	754.4	780.0	808.2	830.4	843.9	839.9	819.9	V(PIR) 1	
V(PIR) 2	362.9	366.2	411.4	482.0	506.5	523.4	474.1	427.6	380.0	V(PIR) 2	
VTHETA PR1	-607.7	-615.4	-623.1	-640.6	-678.4	-710.2	-733.8	-741.5	-749.1	VTHETA PR1	
VTHETA PR2	-130.5	-105.2	-179.5	-207.9	-246.9	-279.1	-298.0	-287.8	-265.8	VTHETA PR2	
U 1	607.70	615.37	623.11	646.62	678.42	710.24	733.76	741.48	749.14	U 1	
U 2	609.43	616.50	623.57	644.78	673.05	701.33	722.56	729.64	736.74	U 2	
M 1	0.3485	0.3844	0.3866	0.3978	0.3997	0.3912	0.3788	0.3570	0.3011	M 1	
M 2	0.5151	0.4886	0.5082	0.5446	0.5425	0.5378	0.4928	0.4746	0.4745	M 2	
M(PIR) 1	0.6519	0.6786	0.6858	0.7102	0.7354	0.7551	0.7667	0.7615	0.7410	M(PIR) 1	
M(PIR) 2	0.3187	0.3211	0.3617	0.4258	0.4474	0.4593	0.4155	0.3735	0.3317	M(PIR) 2	
TURN(PIR)	36.605	28.681	29.805	30.374	27.906	25.354	21.448	19.741	21.643	TURN(PIR)	
UUBAR	0.1740	0.2312	0.1760	0.0695	0.0540	0.0657	0.1071	0.2193	0.3219	UUBAR	
LOSS PARA	0.0469	0.0604	0.0469	0.2193	0.0152	0.0187	0.0345	0.0573	0.0593	LOSS PARA	
DFAC	0.6880	0.6865	0.6291	0.5544	0.5426	0.5437	0.6127	0.6754	0.7407	DFAC	
EFFP	0.8424	0.7552	0.8112	0.9513	0.9810	0.9922	0.8547	0.8218	0.8829	EFFP	
EFF	0.8363	0.7469	0.8044	0.9493	0.9802	0.9919	0.8490	0.8148	0.8779	EFF	
INCID	5.842	3.225	2.997	1.877	1.029	0.764	1.002	2.220	5.431	INCID	
DEVM	13.329	17.524	14.963	9.359	8.507	7.624	11.468	14.251	15.601	DEVM	
P 1	14.460	14.694	14.694	14.694	14.694	14.694	14.694	14.560	14.220	P 1	
P 2	18.925	18.600	18.850	19.500	19.675	19.775	19.305	19.105	19.120	P 2	
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1	
T 2	568.270	567.080	566.260	564.710	564.730	565.010	568.250	570.080	570.860	T 2	
STATOR B											
PCT SPAN	55.05	90.12	85.15	70.15	50.00	29.85	14.84	9.88	4.94	PCT SPAN	
DIA	33.203	33.556	33.910	34.981	36.420	37.859	38.930	39.285	39.637	DIA	
BETA 2	54.125	53.430	49.604	44.795	43.541	43.347	48.298	53.474	58.775	BETA 2	
BETA 2A	C.630	1.030	2.730	5.810	5.481	5.361	5.452	5.332	5.172	BETA 2A	
V 2	591.17	562.06	583.27	620.67	619.80	616.79	570.54	551.76	552.66	V 2	
V 2A	375.76	375.36	380.99	435.65	480.69	498.42	470.55	449.31	426.96	V 2A	
VZ 2	346.43	334.88	377.99	440.40	449.10	448.15	379.15	328.08	286.26	VZ 2	
VZ 2A	375.74	375.29	380.55	433.36	478.30	495.82	467.84	446.74	424.56	VZ 2A	
V-THETA 2	479.02	451.41	444.20	437.26	426.79	423.01	425.51	442.96	472.21	V-THETA 2	
V-THETA 2A	4.18	6.75	18.15	44.09	45.89	46.53	44.65	41.70	38.43	V-THETA 2A	
M 2	0.5194	0.4931	0.5130	0.5486	0.5478	0.5449	0.5003	0.4823	0.4828	M 2	
M 2A	0.3285	0.3249	0.3302	0.3793	0.4199	0.4358	0.4094	0.3897	0.3695	M 2A	
TURN(PIR)	53.495	52.400	46.873	38.980	38.040	37.944	42.783	48.074	53.534	TURN(PIR)	
UUBAR	0.0985	0.0088	0.0729	0.1031	0.0218	0.0207	-0.0185	-0.0132	0.0596	UUBAR	
LOSS PARA	0.0319	0.0029	0.0240	0.0347	0.0076	0.0076	-0.0069	-0.0050	0.0229	LOSS PARA	
DFAC	0.6177	0.5906	0.5877	0.5132	0.4417	0.4168	0.4292	0.4654	0.5326	DFAC	
EFFP	0.8458	0.9849	0.8836	0.8171	0.9514	0.9468	1.0498	1.0367	0.8646	EFFP	
INCID	7.154	7.229	4.133	1.120	1.289	0.948	4.925	9.545	14.244	INCID	
DEVM	13.661	13.884	15.464	18.143	17.599	18.065	18.955	19.133	19.316	DEVM	
P 2	18.925	18.600	18.850	19.500	19.675	19.775	19.305	19.105	19.120	P 2	
P 2A	18.612	18.575	18.624	19.128	19.536	19.700	19.361	19.142	18.952	P 2A	
T 2	568.270	567.080	566.260	564.710	564.730	565.010	568.250	570.080	570.860	T 2	
T 2A	568.300	567.090	566.270	564.710	564.730	565.010	568.270	570.070	570.860	T 2A	
UUBAR FS	0.1567	0.1679	0.1278	0.0669	0.0473	0.0412	0.0717	0.0808	0.1362	UUBAR FS	
P2 FS	19.145	19.145	19.045	19.360	19.772	19.852	19.600	19.392	19.370	P2 FS	
LOSS PARA FS	0.0907	0.0953	0.0420	0.0225	0.0164	0.0151	0.0267	0.0306	0.0523	LOSS PARA FS	

Table A-3. Blade Element Performance (Continued)

Stage C Rotor C - Stator B													
CALCULATIONS USING TRANSLATED VALUES													
PERCENT EQUIVALENT ROTOR SPEED = 99.80				EQUIVALENT ROTOR SPEED = 4201.61				EQUIVALENT WEIGHT FLOW = 94.51					
INLET													
PCT SPAN	96.61	91.52	86.39	70.81	49.79	28.83	13.41	8.35	3.34	PCT SPAN			
DIA	33.138	33.570	34.005	35.328	37.113	38.892	40.202	40.631	41.056	DIA			
BETA 0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 0			
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1			
V 0	381.55	381.55	381.55	381.55	381.55	381.55	381.55	381.55	381.55	V 0			
V 1	353.19	369.57	392.32	394.49	398.88	394.01	382.73	359.96	298.88	V 1			
VZ 0	381.54	381.55	381.55	381.54	381.51	381.48	381.44	381.43	381.41	VZ 0			
VZ 1	353.19	369.57	392.32	394.48	398.85	393.93	382.63	359.85	298.78	VZ 1			
V-THETA 0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 0			
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1			
M 0	0.3458	0.3458	0.3458	0.3458	0.3458	0.3458	0.3458	0.3458	0.3458	M 0			
M 1	0.3196	0.3533	0.3558	0.3579	0.3619	0.3574	0.3469	0.3258	0.2697	M 1			
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN			
UUBAR	0.1834	0.0	0.0	0.0	0.0	0.0	0.0	0.1149	0.4148	UUBAR			
DFAC	0.074	-0.021	-0.028	-0.034	-0.045	-0.033	-0.003	0.057	0.217	DFAC			
EFFP	-4.4106	0.9998	0.9997	0.9998	1.0001	1.0001	0.9993	296.5925	-24.8392	EFFP			
INCID	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	INCID			
DEVM	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	DEVM			
P 0	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	P 0			
P 1	14.480	14.694	14.694	14.694	14.694	14.694	14.694	14.560	14.210	P 1			
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0			
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1			
ROTOR C													
PCT SPAN	55.00	90.01	85.00	70.01	50.02	30.02	15.01	10.00	4.98	PCT SPAN			
DIA	33.235	33.621	34.005	35.163	36.705	38.247	39.405	39.791	40.178	DIA			
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1			
BETA 2	55.654	55.464	52.566	46.840	45.122	45.295	54.137	59.107	64.283	BETA 2			
BETA(PK) 1	58.582	56.372	56.513	57.339	58.352	59.881	61.404	63.111	67.402	BETA(PK) 1			
BETA(PK) 2	19.884	26.732	26.496	25.754	29.241	32.406	41.684	42.191	43.803	BETA(PK) 2			
V 1	371.14	409.20	412.13	414.45	418.27	412.41	400.64	376.69	312.46	V 1			
V 2	551.73	555.64	568.28	608.20	609.99	606.44	542.83	551.63	559.61	V 2			
VZ 1	371.13	409.20	412.13	414.41	418.06	411.93	399.91	375.92	311.74	VZ 1			
VZ 2	333.84	315.01	345.43	415.99	430.23	426.21	317.71	282.99	242.67	VZ 2			
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1			
V-THETA 2	468.56	457.72	451.24	443.61	432.06	430.63	439.50	472.97	503.84	V-THETA 2			
V(PK) 1	712.0	738.9	747.3	767.9	796.9	821.2	835.9	831.5	811.5	V(PK) 1			
V(PK) 2	355.0	352.7	386.0	462.1	493.4	535.5	426.1	382.6	336.9	V(PK) 2			
VTHETA PR1	-607.6	-615.2	-623.0	-646.5	-678.3	-710.1	-733.6	-741.3	-749.0	VTHETA PR1			
VTHETA PR2	-120.7	-158.7	-172.2	-201.0	-240.8	-270.5	-282.9	-256.5	-232.7	VTHETA PR2			
U 1	607.57	615.23	622.97	646.48	678.27	710.09	733.60	741.32	748.98	U 1			
U 2	609.30	616.37	623.44	646.64	672.91	701.18	722.41	729.49	736.58	U 2			
M 1	0.3362	0.3716	0.3743	0.3765	0.3800	0.3746	0.3636	0.3413	0.2821	M 1			
M 2	0.5195	0.4367	0.4983	0.5364	0.5380	0.5344	0.4742	0.4816	0.4885	M 2			
M(PK) 1	0.6449	0.6709	0.6764	0.6975	0.7243	0.7458	0.7580	0.7535	0.7327	M(PK) 1			
M(PK) 2	0.3117	0.3309	0.3363	0.4076	0.4351	0.4454	0.3722	0.3340	0.2941	M(PK) 2			
TURN(PK) 1	38.697	29.640	30.017	31.548	29.119	27.494	19.756	20.963	23.653	TURN(PK) 1			
UUBAR	0.1005	0.2256	0.1888	0.0905	0.0584	0.0731	0.2228	0.2624	0.2636	UUBAR			
LOSS PARA	0.0436	0.0589	0.0501	0.0251	0.0164	0.0208	0.0582	0.0688	0.0682	LOSS PARA			
DFAC	0.6598	0.7040	0.6623	0.5756	0.5549	0.5601	0.6726	0.7396	0.8056	DFAC			
EFFP	0.8552	0.7600	0.8024	0.9265	0.9653	0.9741	0.8068	0.8324	0.9078	EFFP			
EFF	0.8530	0.7517	0.7952	0.9235	0.9638	0.9730	0.7994	0.8256	0.9036	EFF			
INCID	0.740	0.4054	0.3823	0.283	0.289	1.822	1.966	3.242	6.759	INCID			
DEVM	12.135	17.434	15.577	10.090	8.554	7.542	14.125	14.051	14.919	DEVM			
P 1	14.480	14.694	14.694	14.694	14.694	14.694	14.694	14.560	14.210	P 1			
P 2	19.145	16.725	14.885	19.480	19.735	19.855	19.170	19.295	19.415	P 2			
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1			
T 2	565.180	568.190	567.180	565.820	565.020	566.580	569.920	571.330	572.240	T 2			
STATOR B													
PCT SPAN	95.05	90.12	85.15	70.15	50.00	29.85	14.84	9.88	4.94	PCT SPAN			
DIA	33.203	33.556	33.910	34.981	36.420	37.859	38.930	39.285	39.637	DIA			
BETA 2	55.012	54.774	51.946	46.477	44.682	44.694	53.201	57.892	62.652	BETA 2			
BETA 2A	0.960	1.170	2.010	5.989	5.731	5.501	5.202	4.992	4.742	BETA 2A			
V 2	596.43	560.51	573.33	612.40	615.56	613.97	550.62	560.20	569.10	V 2			
V 2A	362.87	358.84	365.23	415.36	467.64	475.10	439.84	418.82	405.68	V 2A			
VZ 2	342.00	323.30	353.38	421.68	437.50	436.09	329.54	297.52	261.28	VZ 2			
VZ 2A	362.81	358.76	364.97	413.05	465.12	472.52	437.48	416.65	403.66	VZ 2A			
V-THETA 2	488.64	457.87	451.46	444.01	432.67	431.46	440.52	474.15	505.17	V-THETA 2			
V-THETA 2A	6.08	7.33	12.81	43.27	46.68	45.51	39.83	36.39	33.49	V-THETA 2A			
M 2	0.5238	0.4911	0.5034	0.5403	0.5432	0.5414	0.4813	0.4894	0.4972	M 2			
M 2A	0.3133	0.3101	0.3159	0.3608	0.4076	0.4141	0.3813	0.3621	0.3502	M 2A			
TURN(PK) 1	54.051	53.004	47.937	40.492	38.932	39.151	47.939	52.836	57.845	TURN(PK) 1			
UUBAR	0.1369	0.0295	0.0707	0.1032	0.0371	0.0485	-0.0000	0.0607	0.1409	UUBAR			
LOSS PARA	0.0443	0.0096	0.0233	0.0347	0.0130	0.0177	-0.0190	0.0231	0.0542	LOSS PARA			
DFAC	0.6530	0.6224	0.6153	0.5439	0.4620	0.4578	0.4780	0.5528	0.6094	DFAC			
EFFP	0.8018	0.9590	0.8892	0.8274	0.9216	0.8918	1.1268	0.8741	0.7368	EFFP			
INCID	0.041	0.573	0.477	2.802	2.430	2.295	9.830	13.968	18.126	INCID			
DEVM	13.991	14.024	14.744	18.314	17.848	18.205	18.705	18.793	18.887	DEVM			
P 2	19.145	16.725	16.845	19.480	19.735	19.855	19.170	19.295	19.415	P 2			
P 2A	16.698	16.641	16.673	19.118	19.602	19.081	19.310	19.118	18.990	P 2A			
T 2	565.160	568.190	567.180	565.820	566.020	566.580	569.920	571.330	572.240	T 2			
T 2A	565.170	568.110	567.220	565.820	566.020	566.580	569.920	571.330	572.240	T 2A			
UUBAR FS	0.1262	0.1645	0.1280	0.0882	0.0619	0.0660	0.0731	0.1074	0.1608	UUBAR FS			
P2 FS	19.220	19.185	19.082	19.407	19.830	19.922	19.565	19.667	19.615	P2 FS			
LOSS PARA FS	0.0202	0.0333	0.0421	0.0283	0.0216	0.0240	0.0273	0.0408	0.0341	LOSS PARA FS			

Table A-3. Blade Element Performance (Continued)

Stage C Rotor C - Stator B												
CALCULATIONS USING TRANSLATED VALUES												
PERCENT EQUIVALENT ROTCR SPEED = 89.72 EQUIVALENT ROTOR SPEED = 3777.02 EQUIVALENT WEIGHT FLOW = 112.52												
INLET												
	PCT SPAN	96.61	91.52	86.39	70.81	49.79	28.83	13.41	8.35	3.34	PCT SPAN	
	DIA	33.138	33.570	34.006	35.328	37.113	38.892	40.202	40.631	41.056	DIA	
	BETA 0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 0	
	BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1	
	V 0	468.73	468.73	468.73	468.73	468.73	468.73	468.73	468.73	468.73	V 0	
	V 1	472.80	489.11	489.74	492.71	488.45	479.50	469.97	452.80	377.39	V 1	
	VZ 0	468.73	468.73	468.73	468.72	468.69	468.64	468.60	468.58	468.57	VZ 0	
	VZ 1	472.79	489.11	489.74	492.70	488.40	479.41	469.84	452.66	377.25	VZ 1	
	V-THETA 0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 0	
	V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1	
	M 0	0.4275	0.4275	0.4275	0.4275	0.4275	0.4275	0.4275	0.4275	0.4275	M 0	
	M 1	0.4313	0.4468	0.4474	0.4502	0.4461	0.4377	0.4286	0.4124	0.3420	M 1	
	TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN	
	UUBAR	0.0796	0.0040	0.0	0.0	0.0	0.0	0.0167	0.0963	0.4001	UUBAR	
	DFAC	-0.009	-0.043	-0.045	-0.051	-0.042	-0.023	-0.003	0.034	0.195	DFAC	
	EFFP	0.1911	0.9598	1.0000	0.9999	0.9998	0.9996	0.2543	-2.9471	-12.1637	EFFP	
	INCID	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	INCID	
	DEVM	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	DEVM	
	P 0	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	P 0	
	P 1	14.556	14.687	14.694	14.694	14.694	14.694	14.665	14.527	14.000	P 1	
	T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0	
	T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1	
ROTOR C												
	PCT SPAN	95.00	90.01	85.00	70.01	50.02	30.02	15.01	10.00	4.98	PCT SPAN	
	DIA	23.235	33.621	34.006	35.163	36.705	38.247	39.405	39.791	40.178	DIA	
ROTOR -L.E.	BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1	
ROTOR -T.E.	BETA 2	35.634	31.909	30.440	29.730	28.968	27.474	26.874	27.275	30.028	BETA 2	
	BETA(PRI) 1	47.553	46.972	47.289	48.166	49.860	51.751	53.225	54.539	59.632	BETA(PRI) 1	
	BETA(PRI) 2	26.711	25.199	24.918	26.190	31.446	35.254	36.310	37.252	44.819	BETA(PRI) 2	
	V 1	499.57	516.25	516.96	520.27	514.43	503.80	493.80	475.63	395.42	V 1	
	V 2	552.39	597.07	617.80	627.95	593.83	579.94	587.67	579.62	487.89	V 2	
	VZ 1	499.55	516.25	516.96	520.22	514.17	503.21	492.90	474.65	394.51	VZ 1	
	VZ 2	448.96	506.84	532.64	545.20	519.19	513.79	523.04	513.90	421.28	VZ 2	
	V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1	
	V-THETA 2	321.82	315.59	312.99	311.35	287.42	267.16	265.06	264.96	243.51	V-THETA 2	
	V(PRI) 1	740.2	756.6	762.1	780.0	797.8	813.2	823.9	818.7	780.8	V(PRI) 1	
	V(PRI) 2	502.6	560.2	587.3	607.7	609.0	630.3	650.3	646.9	595.0	V(PRI) 2	
	VTHTA PRI	-546.2	-553.1	-560.0	-581.1	-609.7	-638.3	-659.5	-666.4	-673.3	VTHTA PRI	
	VTHTA PR2	-225.9	-238.5	-247.4	-268.2	-317.5	-363.2	-384.3	-390.8	-418.6	VTHTA PR2	
	U 1	546.17	553.06	560.02	581.15	609.73	638.33	659.47	666.41	673.29	U 1	
	U 2	547.73	554.08	560.44	579.50	604.91	630.32	649.41	655.77	662.14	U 2	
	M 1	0.4567	0.4727	0.4733	0.4765	0.4709	0.4608	0.4512	0.4340	0.3587	M 1	
	M 2	0.4922	0.5347	0.5549	0.5650	0.5325	0.5197	0.5266	0.5186	0.4331	M 2	
	M(PRI) 1	0.6767	0.6927	0.6978	0.7144	0.7303	0.7437	0.7528	0.7471	0.7084	M(PRI) 1	
	M(PRI) 2	0.4479	0.5016	0.5275	0.5468	0.5461	0.5645	0.5827	0.5788	0.5282	M(PRI) 2	
	TURN(PRI)	20.842	21.773	22.372	21.979	18.422	16.514	16.941	17.318	14.857	TURN(PRI)	
	UUBAR	0.2441	0.1568	0.1010	0.0913	0.1098	0.0936	0.0692	0.0613	0.0884	UUBAR	
	LOSS PARA	0.0629	0.0415	0.0271	0.0224	0.0302	0.0258	0.0195	0.0173	0.0225	LOSS PARA	
	DFAC	0.4467	0.3817	0.3511	0.3435	0.3523	0.3354	0.3223	0.3235	0.3488	DFAC	
	FFFP	0.6239	0.7498	0.8595	0.9371	0.8451	0.8552	0.8928	0.8887	0.7899	FFFP	
	EFF	0.6171	0.7446	0.8562	0.9355	0.8417	0.8520	0.8902	0.8860	0.7852	EFF	
	INCID	-4.289	-5.306	-5.401	-5.890	-6.204	-6.312	-6.219	-5.338	-1.021	INCID	
	DEVM	18.941	15.901	13.999	10.487	10.758	10.388	8.755	9.115	15.935	DEVM	
	P 1	14.556	14.687	14.694	14.694	14.694	14.694	14.665	14.527	14.000	P 1	
	P 2	16.510	17.015	17.300	17.475	17.185	17.155	17.315	17.230	16.285	P 2	
	T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1	
	T 2	545.500	548.610	547.630	546.850	546.900	546.240	547.020	547.950	547.860	T 2	
STATOR B												
	PCT SPAN	95.05	90.12	85.15	70.15	50.00	29.85	14.84	9.88	4.94	PCT SPAN	
	DIA	33.202	33.556	33.910	34.981	36.420	37.859	38.930	39.285	39.637	DIA	
STATOR-L.F.	BETA 2	35.329	31.590	30.133	29.525	28.727	27.169	26.494	26.864	29.594	BETA 2	
STATOR-T.E.	BETA 2A	5.646	6.010	6.301	6.700	6.751	6.962	7.303	7.083	6.093	BETA 2A	
	V 2	556.62	602.66	623.79	632.48	599.21	586.98	596.71	589.10	495.51	V 2	
	V 2A	580.33	620.48	629.73	662.51	664.86	662.41	683.67	662.59	609.93	V 2A	
	VZ 2	454.12	513.36	539.48	550.25	525.15	521.55	533.00	524.38	429.88	VZ 2	
	VZ 2A	577.52	617.07	625.92	657.91	659.99	656.98	677.29	656.62	605.54	VZ 2A	
	V-THETA 2	321.88	315.70	313.14	311.63	287.83	267.68	265.68	265.62	244.15	V-THETA 2	
	V-THETA 2A	57.03	64.97	69.11	77.29	78.13	80.22	86.80	81.59	64.64	V-THETA 2A	
	M 2	0.4962	0.5400	0.5606	0.5694	0.5376	0.5264	0.5352	0.5275	0.4402	M 2	
	M 2A	0.5185	0.5569	0.5663	0.5983	0.6005	0.5986	0.6187	0.5977	0.5473	M 2A	
	TURN(PRI)	29.689	25.580	23.832	22.820	21.960	20.175	19.145	19.727	23.436	TURN(PRI)	
	UUBAR	0.2073	0.1966	0.2377	0.1838	0.1020	0.1186	0.1213	0.2000	0.1296	UUBAR	
	LOSS PARA	0.0668	0.0638	0.0778	0.0619	0.0357	0.0432	0.0455	0.0759	0.0498	LOSS PARA	
	DFAC	0.1115	0.1064	0.1195	0.0784	0.0144	-0.0105	-0.0313	-0.0042	-0.0896	DFAC	
	EFFP	3.1714	3.9352	12.0975	2.6696	1.3904	1.3856	1.3433	1.6757	1.2307	EFFP	
	INCID	-11.642	-14.611	-15.337	-14.150	-13.522	-15.222	-16.865	-17.053	-14.935	INCID	
	DEVM	18.671	18.864	19.035	19.034	18.868	19.664	20.804	20.881	20.236	DEVM	
	P 2	16.510	17.015	17.300	17.475	17.185	17.155	17.315	17.230	16.285	P 2	
	P 2A	15.980	16.413	16.510	16.841	16.872	16.805	16.943	16.635	16.022	P 2A	
	T 2	549.500	548.610	547.630	546.850	546.900	546.240	547.020	547.950	547.860	T 2	
	T 2A	549.500	548.610	547.630	546.850	546.900	546.240	547.020	547.950	547.860	T 2A	
	UUBAR FS	0.2371	0.1866	0.2128	0.2178	0.1684	0.1784	0.1517	0.1685	0.2691	UUBAR FS	
	P2 FS	16.610	16.977	17.193	17.625	17.430	17.370	17.424	17.117	16.672	P2 FS	
	LOSS PARA FS	0.0764	0.0605	0.0696	0.0732	0.0589	0.0649	0.0569	0.0639	0.1034	LOSS PARA FS	

Table A-3. Blade Element Performance (Continued)

Stage C Rotor C - Stator B											
CALCULATIONS USING TRANSLATED VALUES											
PERCENT EQUIVALENT ROTOR SPEED = 89.68 EQUIVALENT ROTOR SPEED = 3775.51 EQUIVALENT WEIGHT FLOW = 107.07											
INLET	PCT SPAN	96.61	91.52	86.39	70.81	49.79	28.83	13.41	8.35	3.34	PCT SPAN
	DIA	33.138	33.570	34.006	35.328	37.113	38.892	40.202	40.631	41.056	DIA
	BETA 0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 0
	BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1
	V 0	441.36	441.36	441.36	441.36	441.36	441.36	441.36	441.36	441.36	V 0
	V 1	424.51	449.42	451.56	453.60	453.42	446.46	434.43	418.02	334.97	V 1
	VZ 0	441.35	441.35	441.35	441.35	441.32	441.27	441.23	441.22	441.20	VZ 0
	VZ 1	424.51	449.42	451.56	453.59	453.39	446.37	434.31	417.89	334.86	VZ 1
	V-THETA 0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 0
	V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1
	M 0	0.4017	0.4017	0.4017	0.4017	0.4017	0.4017	0.4017	0.4017	0.4017	M 0
	M 1	0.3859	0.4093	0.4113	0.4132	0.4130	0.4065	0.3952	0.3798	0.3028	M 1
	TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
	UUBAR	0.1255	0.0052	-0.0006	-0.0006	-0.0006	-0.0006	0.0188	0.0932	0.4522	UUBAR
	DFAC	0.038	-0.018	-0.023	-0.028	-0.027	-0.012	0.016	0.053	0.241	DFAC
	EFFP	-1.7457	0.8842	1.0125	1.0106	1.0110	1.0263	2.2815	6.5933	-40.3726	EFFP
	INCID	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	INCID
	DEVM	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	DEVM
	P 0	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	P 0
	P 1	14.500	14.686	14.695	14.695	14.695	14.695	14.665	14.550	13.995	P 1
	T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
	T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR C ROTOR -L.E. ROTOR -T.E.	PCT SPAN	95.00	90.01	85.00	70.01	50.02	30.02	15.01	10.00	4.98	PCT SPAN
	DIA	33.235	33.621	34.006	35.163	36.705	38.247	39.405	39.791	40.178	DIA
	BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1
	BETA 2	42.926	38.965	36.743	35.427	34.608	33.732	33.791	36.363	40.734	BETA 2
	BETA(PR) 1	50.668	49.432	49.648	50.565	51.990	53.756	55.394	56.705	62.545	BETA(PR) 1
	BETA(PR) 2	25.219	24.646	23.927	25.264	29.450	33.178	36.086	39.313	46.777	BETA(PR) 2
	V 1	447.38	473.31	475.61	477.82	476.58	468.30	455.68	438.39	350.49	V 1
	V 2	533.68	561.96	587.38	600.86	585.87	574.01	559.78	524.51	454.63	V 2
	VZ 1	447.37	473.30	475.61	477.77	476.35	467.75	454.86	437.49	349.69	VZ 1
	VZ 2	390.78	436.94	470.68	489.54	481.92	476.76	464.32	421.51	343.80	VZ 2
	V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1
	V-THETA 2	363.46	353.39	351.38	348.24	332.56	318.35	310.73	310.34	296.06	V-THETA 2
	VIPR 1	705.8	727.8	734.6	752.2	773.7	791.5	801.4	797.5	758.8	VIPR 1
	VIPR 2	432.0	480.7	514.9	541.4	553.8	570.4	575.6	545.8	502.8	VIPR 2
	VTHETA PR1	-546.0	-552.8	-559.8	-580.9	-609.5	-638.1	-659.2	-666.1	-673.0	VTHETA PR1
	VTHETA PR2	-184.0	-200.5	-208.8	-231.0	-272.1	-311.7	-338.4	-345.2	-365.8	VTHETA PR2
	U 1	545.96	552.84	559.79	580.91	609.48	638.08	659.21	666.14	673.03	U 1
	U 2	547.51	553.86	560.21	579.27	604.66	630.07	649.15	655.51	661.88	U 2
	M 1	0.4073	0.4318	0.4340	0.4361	0.4349	0.4271	0.4152	0.3989	0.3171	M 1
	M 2	0.4729	0.4997	0.5239	0.5368	0.5225	0.5117	0.4977	0.4646	0.4005	M 2
	MPR 1	0.6427	0.6639	0.6703	0.6865	0.7060	0.7218	0.7301	0.7256	0.6865	MPR 1
	MPR 2	0.3827	0.4274	0.4593	0.4837	0.4939	0.5084	0.5118	0.4835	0.4430	MPR 2
	TURN(PR)	25.448	24.786	25.722	25.303	22.547	20.595	19.335	17.427	15.815	TURN(PR)
	UUBAR	0.1982	0.1536	0.0948	0.0513	0.0561	0.0522	0.0630	0.1083	0.0777	UUBAR
	LOSS PARA	0.0518	0.0408	0.0257	0.0143	0.0157	0.0147	0.0178	0.0297	0.0191	LOSS PARA
	DFAC	0.5369	0.4816	0.4408	0.4224	0.4221	0.4141	0.4162	0.4521	0.4760	DFAC
	EFFP	0.7289	0.7779	0.8750	0.9582	0.9375	0.9552	0.9072	0.8333	0.8481	EFFP
	EFF	0.7223	0.7724	0.8716	0.9570	0.9357	0.9539	0.9045	0.8288	0.8439	EFF
	INCID	-1.174	-2.846	-3.042	-3.492	-4.073	-4.306	-4.049	-3.171	-1.895	INCID
	DEVM	17.470	15.348	13.007	9.561	8.763	8.313	8.531	11.174	17.893	DEVM
	P 1	14.500	14.686	14.695	14.695	14.695	14.695	14.665	14.550	13.995	P 1
	P 2	17.140	17.460	17.760	18.050	18.000	18.000	17.920	17.570	16.960	P 2
	T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
	T 2	553.850	552.730	551.800	551.500	551.780	551.150	552.500	553.350	553.390	T 2
STATOR B STATOR-L.E. STATOR-T.E.	PCT SPAN	95.05	90.12	85.15	70.15	50.00	29.85	14.84	9.88	4.94	PCT SPAN
	DIA	33.203	33.556	33.910	34.981	36.420	37.859	38.930	39.285	39.637	DIA
	BETA 2	42.531	38.573	36.372	35.184	34.312	33.346	33.318	35.825	40.113	BETA 2
	BETA 2A	2.835	3.580	4.970	5.440	4.871	5.121	5.582	5.212	4.367	BETA 2A
	V 2	537.78	566.96	592.81	605.01	591.10	580.90	567.98	532.49	461.55	V 2
	V 2A	431.04	465.55	487.24	537.45	548.98	552.31	551.38	527.81	489.02	V 2A
	VZ 2	396.30	443.26	477.31	494.40	487.98	484.72	473.82	430.97	352.35	VZ 2
	VZ 2A	430.51	464.64	485.40	534.97	546.77	549.65	548.08	524.90	486.83	VZ 2A
	V-THETA 2	363.53	353.50	351.55	348.56	333.03	318.96	311.46	311.12	296.84	V-THETA 2
	V-THETA 2A	21.32	29.07	42.21	50.94	46.59	49.26	53.57	47.88	37.18	V-THETA 2A
	M 2	0.4766	0.5043	0.5290	0.5407	0.5274	0.5182	0.5054	0.4720	0.4068	M 2
	M 2A	0.3790	0.4107	0.4309	0.4774	0.4880	0.4914	0.4899	0.4676	0.4319	M 2A
	TURN(PR)	39.696	34.993	31.402	29.739	29.423	28.187	27.679	30.546	35.667	TURN(PR)
	UUBAR	0.1256	0.1293	0.1573	0.0783	0.0322	0.0415	0.0506	0.0402	-0.0690	UUBAR
	LOSS PARA	0.0406	0.0421	0.0516	0.0264	0.0113	0.0152	0.0190	0.0153	-0.0266	LOSS PARA
	DFAC	0.4045	0.3658	0.3502	0.2787	0.2426	0.2204	0.2021	0.1991	0.1594	DFAC
	EFFP	0.6764	0.6378	0.5605	0.6683	0.7910	0.6129	0.2100	-1.0912	0.4798	EFFP
	INCID	-4.441	-7.628	-9.098	-8.491	-7.938	-9.049	-10.050	-8.103	-4.427	INCID
	DEVM	15.866	16.434	17.704	17.773	16.989	17.825	19.085	19.013	18.512	DEVM
	P 2	17.140	17.460	17.760	18.050	18.000	18.000	17.920	17.570	16.960	P 2
	P 2A	16.830	17.100	17.275	17.795	17.900	17.875	17.775	17.470	17.086	P 2A
	T 2	553.850	552.730	551.800	551.500	551.780	551.150	552.500	553.350	553.390	T 2
	T 2A	553.850	552.730	551.800	551.500	551.780	551.150	552.500	553.350	553.390	T 2A
	UUBAR FS	0.1178	0.1393	0.0945	0.0881	0.0920	0.0870	0.0731	0.1141	0.1860	UUBAR FS
	P2 FS	17.287	17.492	17.552	18.085	18.065	18.082	17.990	17.777	17.332	P2 FS
	LOSS PARA FS	0.0365	0.0453	0.0316	0.0297	0.0182	0.0249	0.0274	0.0434	0.0717	LOSS PARA FS

Table A-3. Blade Element Performance (Continued)

Stage C Rotor C - Stator B											
CALCULATIONS USING TRANSLATED VALUES											
PERCENT EQUIVALENT ROTOR SPEED = 89.73 EQUIVALENT ROTOR SPEED = 3777.74 EQUIVALENT WEIGHT FLOW = 100.49											
INLET											
PCT SPAN	96.61	91.52	86.39	70.81	49.79	28.83	13.41	8.35	3.34	PCT SPAN	
DIA	33.138	33.570	34.006	35.328	37.113	38.892	40.202	40.631	41.056	DIA	
BETA 0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 0	
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1	
V 0	409.52	409.52	409.52	409.52	409.52	409.52	409.52	409.52	409.52	V 0	
V 1	391.46	413.15	416.76	424.08	424.18	419.70	409.38	391.43	314.53	V 1	
VZ 0	409.52	409.52	409.52	409.51	409.48	409.44	409.40	409.39	409.38	VZ 0	
VZ 1	391.45	413.14	416.76	424.07	424.14	419.62	409.27	391.31	314.42	VZ 1	
V-THETA 0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 0	
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1	
M 0	0.3715	0.3719	0.3719	0.3719	0.3719	0.3719	0.3719	0.3719	0.3719	M 0	
M 1	0.3550	0.3752	0.3786	0.3855	0.3856	0.3814	0.3717	0.3550	0.2940	M 1	
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN	
UUBAR	0.1114	0.0	0.0	0.0	0.0	0.0	0.0179	0.0964	0.4439	UUBAR	
DFAC	0.044	-0.009	-0.018	-0.036	-0.036	-0.025	0.000	0.044	0.232	DFAC	
EFFP	-4.5058	1.0009	0.9997	0.9998	0.9998	0.9996	-0.0389	-17.9089	-22.0113	EFFP	
INCIO	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	INCIO	
DEVW	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	DEVW	
P 0	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	P 0	
P 1	14.545	14.694	14.694	14.694	14.694	14.694	14.670	14.565	14.100	P 1	
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0	
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1	
ROTOR C											
PCT SPAN	95.00	90.01	85.00	70.01	50.02	30.02	15.01	10.00	4.98	PCT SPAN	
DIA	33.235	33.621	34.006	35.163	36.705	38.247	39.405	39.791	40.178	DIA	
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1	
BETA 2	47.197	44.225	41.259	39.141	38.170	37.602	38.887	42.852	49.116	BETA 2	
BETA(PR) 1	52.978	51.862	51.963	52.500	53.882	55.476	57.011	58.449	64.020	BETA(PR) 1	
BETA(PR) 2	24.073	24.953	24.202	24.907	29.191	33.021	35.965	38.990	44.815	BETA(PR) 2	
V 1	411.55	434.34	438.21	446.06	445.22	439.70	428.95	410.11	328.91	V 1	
V 2	528.16	537.57	562.05	584.74	577.59	561.00	545.57	515.88	471.63	V 2	
VZ 1	411.97	434.33	438.21	446.01	445.00	439.19	428.17	409.27	328.15	VZ 1	
VZ 2	358.88	385.22	422.50	453.46	449.92	443.55	423.94	377.56	308.23	VZ 2	
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1	
V-THETA 2	387.51	374.94	370.65	369.05	353.67	341.91	341.92	350.26	356.03	V-THETA 2	
V(PR) 1	684.2	703.3	711.2	732.7	755.1	775.2	786.8	782.6	749.5	V(PR) 1	
V(PR) 2	393.1	424.9	463.2	500.1	515.7	530.2	524.7	486.7	435.3	V(PR) 2	
VTHETA PR1	-546.3	-553.2	-560.1	-581.3	-609.8	-638.5	-659.6	-673.4	-673.4	VTHETA PR1	
VTHETA PR2	-160.3	-179.2	-189.9	-210.6	-251.4	-288.5	-307.6	-305.6	-306.2	VTHETA PR2	
U 1	546.28	553.17	560.12	581.26	609.84	638.45	659.60	666.54	673.42	U 1	
U 2	547.83	554.19	560.55	579.61	605.02	630.44	649.53	655.89	662.27	U 2	
M 1	0.3742	0.3951	0.3987	0.4061	0.4053	0.4001	0.4034	0.3724	0.2977	M 1	
M 2	0.4669	0.4761	0.4991	0.5206	0.5091	0.4984	0.4834	0.4555	0.4148	M 2	
M(PR) 1	0.6214	0.6397	0.6471	0.6670	0.6874	0.7054	0.7154	0.7107	0.6772	M(PR) 1	
M(PR) 2	0.3475	0.3763	0.4114	0.4452	0.4586	0.4710	0.4650	0.4297	0.3829	M(PR) 2	
TURN(PR)	28.905	26.909	27.761	27.595	24.699	22.473	21.075	19.495	19.255	TURN(PR)	
UUBAR	0.1824	0.1685	0.1057	0.0459	0.0417	0.0457	0.0825	0.1419	0.1427	UUBAR	
LOSS PARA	0.0481	0.0447	0.0286	0.0128	0.0117	0.0129	0.0233	0.0390	0.0363	LOSS PARA	
DFAC	0.5893	0.5520	0.5031	0.4722	0.4673	0.4639	0.4838	0.5352	0.5880	DFAC	
EFFP	0.7769	0.7868	0.8647	0.9704	0.9688	0.9753	0.9191	0.8529	0.8811	EFFP	
EFF	0.7700	0.7811	0.8608	0.9695	0.9678	0.9745	0.9165	0.8485	0.8774	EFF	
INCIO	1.137	-0.416	-0.727	-1.557	-2.182	-2.585	-2.431	-1.426	3.373	INCIO	
DEVW	16.324	15.655	13.283	9.204	8.504	8.156	8.409	10.852	15.931	DEVW	
P 1	14.545	14.694	14.694	14.694	14.694	14.670	14.565	14.100	14.100	P 1	
P 2	17.550	17.670	17.940	18.320	18.330	18.330	18.220	17.920	17.510	P 2	
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1	
T 2	555.790	554.630	554.060	553.500	553.650	553.410	554.850	556.000	556.440	T 2	
STATOR B											
PCT SPAN	95.05	90.12	85.15	70.15	50.00	29.95	14.84	9.88	4.94	PCT SPAN	
DIA	33.203	33.556	33.910	34.981	36.420	37.859	38.930	39.285	39.637	DIA	
BETA 2	46.752	43.770	40.842	38.871	37.841	37.171	38.327	42.186	48.277	BETA 2	
BETA 2A	2.400	2.950	4.130	5.580	4.861	5.052	5.452	5.062	4.422	BETA 2A	
V 2	532.09	542.19	567.04	588.69	577.60	567.57	553.47	523.66	478.91	V 2	
V 2A	395.74	413.45	431.29	478.46	498.28	505.20	492.98	473.40	442.89	V 2A	
VZ 2	364.56	391.52	428.97	458.27	455.92	451.80	433.53	397.43	318.30	VZ 2	
VZ 2A	395.79	412.94	430.16	476.51	496.29	502.81	490.14	470.89	440.88	VZ 2A	
V-THETA 2	387.57	375.07	370.83	369.39	354.17	342.57	342.72	351.13	356.94	V-THETA 2	
V-THETA 2A	16.57	20.56	31.06	46.56	42.21	44.45	46.78	41.71	34.09	V-THETA 2A	
M 2	0.4705	0.4804	0.5038	0.5243	0.5138	0.5046	0.4908	0.4627	0.4215	M 2	
M 2A	0.3465	0.3628	0.3791	0.4226	0.4403	0.4468	0.4350	0.4166	0.3888	M 2A	
TURN(PR)	44.352	40.920	36.712	33.285	32.961	32.079	32.814	37.053	43.776	TURN(PR)	
UUBAR	0.1012	0.0907	0.1261	0.0863	0.0281	0.0246	0.0560	0.0307	-0.0248	UUBAR	
LOSS PARA	0.0327	0.0296	0.0414	0.0291	0.0099	0.0090	0.0211	0.0117	-0.0096	LOSS PARA	
DFAC	0.4420	0.4511	0.4370	0.3728	0.3283	0.3035	0.3128	0.3233	0.3374	DFAC	
EFFP	0.7902	0.8009	0.7264	0.7699	0.9010	0.8932	0.7535	0.8462	1.1590	EFFP	
INCIO	-0.219	-2.431	-4.629	-4.804	-4.410	-5.227	-5.044	-1.745	3.737	INCIO	
DEVW	15.431	15.704	16.864	17.914	16.979	17.756	18.955	18.863	18.567	DEVW	
P 2	17.550	17.670	17.940	18.320	18.330	18.330	18.220	17.920	17.510	P 2	
P 2A	17.300	17.436	17.580	18.050	18.245	18.258	18.065	17.845	17.660	P 2A	
T 2	555.790	554.630	554.060	553.500	553.650	553.410	554.850	556.000	556.440	T 2	
T 2A	555.790	554.630	554.060	553.500	553.650	553.410	554.850	556.000	556.440	T 2A	
UUBAR FS	0.1012	0.1350	0.0943	0.0744	0.0424	0.0450	0.0857	0.1003	0.1280	UUBAR FS	
P2 FS	17.685	17.802	17.880	18.280	18.375	18.392	18.310	18.110	17.967	P2 FS	
LOSS PARA FS	0.0477	0.0440	0.0309	0.0250	0.0149	0.0164	0.0322	0.0383	0.0611	LOSS PARA FS	

Table A-3. Blade Element Performance (Continued)

		Stator C Rotor C - Stator B											
		CALCULATIONS USING TRANSLATED VALUES											
		PERCENT EQUIVALENT ROTCP SPEED = 89.79 EQUIVALENT ROTOR SPEED = 3780.03 EQUIVALENT WEIGHT FLOW = 95.04											
INLET	PCT SPAN	96.61	91.52	86.39	79.81	49.79	28.83	13.41	8.35	3.34		PCT SPAN	
	DIA	33.138	33.570	34.006	35.328	37.113	38.892	40.202	40.631	41.056		DIA	
	BETA 0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		BETA 0	
	BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		BETA 1	
	V 0	383.99	383.99	383.99	383.99	383.99	383.99	383.99	383.99	383.99		V 0	
	V 1	374.90	384.27	384.96	394.95	394.32	389.57	381.21	366.64	299.68		V 1	
	VZ 0	383.99	383.99	383.99	383.99	383.99	383.99	383.99	383.99	383.99		VZ 0	
	VZ 1	374.90	384.27	384.96	394.95	394.32	389.57	381.21	366.64	299.68		VZ 1	
	V-THETA 0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		V-THETA 0	
	V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		V-THETA 1	
	M 0	0.3481	0.3481	0.3481	0.3481	0.3481	0.3481	0.3481	0.3481	0.3481		M 0	
	M 1	0.3397	0.3530	0.3527	0.3583	0.3577	0.3533	0.3455	0.3320	0.2704		M 1	
	TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		TURN	
	UURAP	0.0804	0.0	0.0	0.0	0.0	0.0008	0.0119	0.0880	0.4097		UURAP	
	DFAC	0.024	-0.014	-0.013	-0.029	-0.027	-0.015	0.007	0.045	0.220		DFAC	
	EFFP	-1.5731	1.0004	1.0001	1.0000	0.9999	0.9738	4.5362	19.7944	-66.6844		EFFP	
	INCID	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001		INCID	
	DEVM	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000		DEVM	
	P 0	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694		P 0	
	P 1	14.599	14.694	14.694	14.694	14.694	14.693	14.690	14.590	14.210		P 1	
	T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700		T 0	
	T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700		T 1	
ROTOR C ROTOR -L.E. ROTOR -T.E.	PCT SPAN	95.00	90.01	85.00	70.01	50.02	30.02	15.01	10.00	4.98		PCT SPAN	
	DIA	33.235	33.621	34.006	35.163	36.705	38.247	39.405	39.791	40.178		DIA	
	BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		BETA 1	
	BETA 2	50.188	48.219	44.979	41.881	40.879	40.382	42.000	46.913	53.496		BETA 2	
	BETA (PR) 1	54.198	53.546	53.910	54.497	55.896	57.484	58.890	60.134	65.114		BETA (PR) 1	
	BETA (PR) 2	22.823	25.102	24.443	25.588	29.795	33.598	37.027	41.491	45.610		BETA (PR) 2	
	V 1	394.26	408.88	408.55	414.94	413.41	407.71	399.02	383.77	313.30		V 1	
	V 2	528.30	524.20	545.42	566.38	557.01	547.26	529.35	492.52	470.07		V 2	
	VZ 1	394.26	408.88	408.55	414.94	413.41	407.23	398.29	382.98	312.98		VZ 1	
	VZ 2	338.26	349.27	385.80	421.64	420.55	416.42	392.78	335.95	279.28		VZ 2	
	V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		V-THETA 1	
	V-THETA 2	405.82	390.90	385.53	379.06	364.36	354.17	353.45	359.16	377.37		V-THETA 2	
	V (PR) 1	674.0	688.1	693.6	714.5	737.1	757.9	771.2	769.5	743.1		V (PR) 1	
	V (PR) 2	367.0	385.7	423.8	467.6	485.4	500.6	492.9	449.3	399.9		V (PR) 2	
	VTHETA PR1	-546.6	-553.5	-560.5	-581.6	-610.2	-638.8	-666.0	-666.9	-673.8		VTHETA PR1	
	VTHETA PR2	-142.3	-163.6	-175.4	-201.9	-241.0	-276.6	-296.3	-297.1	-285.3		VTHETA PR2	
	U 1	546.61	553.50	560.46	581.61	610.21	638.84	659.99	666.94	673.83		U 1	
	U 2	548.17	554.52	560.89	579.96	605.39	630.82	649.92	656.29	662.67		U 2	
	M 1	0.3577	0.3713	0.3710	0.3769	0.3755	0.3702	0.3621	0.3479	0.2829		M 1	
	M 2	0.4663	0.4630	0.4828	0.5028	0.4941	0.4852	0.4677	0.4335	0.4127		M 2	
	M (PR) 1	0.6114	0.6248	0.6298	0.6490	0.6695	0.6881	0.6998	0.6975	0.6709		M (PR) 1	
	M (PR) 2	0.3239	0.3406	0.3752	0.4151	0.4206	0.4438	0.4355	0.3954	0.3511		M (PR) 2	
	TURN (PR)	31.375	28.444	29.467	28.912	26.109	23.905	21.894	19.682	19.555		TURN (PR)	
	UURAP	0.1872	0.1896	0.1266	0.0605	0.0524	0.0576	0.0961	0.1639	0.1740		UURAP	
	LOSS PARA	0.0498	0.0502	0.0341	0.0168	0.0146	0.0182	0.0268	0.0434	0.0436		LOSS PARA	
	DFAC	0.0296	0.0358	0.0537	0.0881	0.0801	0.0961	0.0520	0.0800	0.0423		DFAC	
	EFFP	0.7481	0.7750	0.8467	0.9475	0.9624	0.9706	0.9043	0.8249	0.8661		EFFP	
	EFF	0.7420	0.7688	0.8417	0.9459	0.9612	0.9697	0.9012	0.8196	0.8618		EFF	
	INCID	2.358	1.268	1.220	0.441	-0.167	-0.576	-0.550	0.261	4.468		INCID	
	DEVM	15.074	15.084	13.524	9.885	9.108	8.733	9.471	13.352	16.726		DEVM	
	P 1	14.555	14.694	14.694	14.694	14.694	14.693	14.680	14.590	14.210		P 1	
	P 2	17.805	17.775	18.030	18.365	18.415	18.430	18.325	17.970	17.770		P 2	
	T 1	514.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700		T 1	
	T 2	557.410	556.410	555.800	554.780	554.650	554.480	556.350	557.520	558.400		T 2	
STATOR B STATOR-L.E. STATOR-T.E.	PCT SPAN	95.05	90.12	85.15	70.15	50.00	29.85	14.84	9.88	4.94		PCT SPAN	
	DIA	33.203	33.556	33.911	34.981	36.420	37.859	39.330	39.285	39.637		DIA	
	BETA 2	49.696	47.702	44.513	41.592	40.523	39.913	41.351	46.180	52.524		BETA 2	
	BETA 2A	2.170	2.720	3.770	5.480	4.791	4.891	5.122	4.832	4.352		BETA 2A	
	V 2	532.23	528.67	550.19	570.11	561.82	553.59	536.86	499.68	477.31		V 2	
	V 2A	371.34	379.33	391.07	438.74	464.69	475.81	465.12	443.28	413.95		V 2A	
	VZ 2	344.27	355.79	392.33	426.33	426.88	424.21	402.71	345.52	290.08		VZ 2	
	VZ 2A	371.07	378.91	390.22	436.68	462.88	473.68	462.68	441.08	412.11		VZ 2A	
	V-THETA 2	405.89	391.03	385.71	378.40	364.88	354.86	354.48	360.05	378.37		V-THETA 2	
	V-THETA 2A	14.06	18.00	25.71	41.89	38.79	40.54	41.47	37.29	31.36		V-THETA 2A	
	M 2	0.4699	0.4671	0.4873	0.5063	0.4986	0.4910	0.4747	0.4400	0.4193		M 2	
	M 2A	0.3242	0.3317	0.3423	0.3856	0.4092	0.4194	0.4090	0.3887	0.3620		M 2A	
	TURN (PR)	47.526	44.992	40.742	36.106	35.712	34.980	36.206	41.276	48.094		TURN (PR)	
	UURAP	0.0936	0.0579	0.1110	0.0804	0.0139	0.0050	0.0050	-0.0304	-0.0198		UURAP	
	LOSS PARA	0.0303	0.0189	0.0365	0.0271	0.0049	0.0018	0.0108	-0.0116	-0.0076		LOSS PARA	
	DFAC	0.5406	0.5130	0.5050	0.4309	0.3781	0.3497	0.3555	0.3613	0.4154		DFAC	
	EFFP	0.8314	0.8898	0.7936	0.8206	0.9602	0.9826	0.8952	1.1314	1.0741		EFFP	
	INCID	2.725	1.501	-0.958	-2.083	-1.729	-2.486	-1.982	2.247	7.985		INCID	
	DEVM	15.201	15.574	16.504	17.813	18.909	17.595	18.626	18.633	18.497		DEVM	
	P 2	17.805	17.775	18.030	18.365	18.415	18.430	18.325	17.970	17.770		P 2	
	P 2A	17.571	17.632	17.730	18.128	18.375	18.416	18.250	18.038	17.810		P 2A	
	T 2	557.410	556.410	555.800	554.780	554.650	554.480	556.350	557.520	558.400		T 2	
	T 2A	557.410	556.410	555.800	554.780	554.650	554.480	556.350	557.520	558.400		T 2A	
	UURAP FS	0.1439	0.1244	0.0908	0.0620	0.0360	0.0343	0.0677	0.0703	0.1175		UURAP FS	
	P2 FS	17.950	17.982	17.970	18.307	18.475	18.514	18.435	18.212	18.084		P2 FS	
	LOSS PARA FS	0.0463	0.0406	0.0298	0.0208	0.0119	0.0123	0.0255	0.0268	0.0451		LOSS PARA FS	

Table A-3. Blade Element Performance (Continued)

Stage C Rotor C - Stator B

CALCULATIONS USING TRANSLATED VALUES
 PERCENT EQUIVALENT ROTOR SPFFD = 89.83 EQUIVALENT ROTOR SPFFD = 3781.93 EQUIVALENT WEIGHT FLOW = 88.84

INLET		PCT SPAN	96.61	91.52	86.39	70.81	49.79	28.83	13.41	8.35	3.34	PCT SPAN
		DIA	33.138	33.570	34.004	35.328	37.113	38.892	40.202	40.631	41.056	DIA
		BETA 0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 0
		BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1
		V 0	355.83	355.83	355.83	355.83	355.83	355.83	355.83	355.83	355.83	V 0
		V 1	343.17	365.77	366.58	367.31	367.99	362.12	349.94	332.69	266.19	V 1
		VZ 0	355.83	355.83	355.83	355.83	355.80	355.77	355.74	355.72	355.71	VZ 0
		VZ 1	343.17	365.77	366.58	367.31	367.96	362.05	349.84	332.59	266.10	VZ 1
		V-THETA 0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 0
		V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1
		M 0	0.3220	0.3220	0.3220	0.3220	0.3220	0.3220	0.3220	0.3220	0.3220	M 0
		M 1	0.3103	0.3312	0.3320	0.3320	0.3333	0.3278	0.3166	0.3007	0.2398	M 1
		TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
		UUBAR	0.1365	-0.0010	-0.0010	-0.0010	-0.0010	-0.0010	0.0236	0.1198	0.4555	UUBAR
		DFAC	0.036	-0.028	-0.030	-0.032	-0.034	-0.018	0.017	0.065	0.252	DFAC
		EFFP	-1.1442	1.0165	1.0155	1.0142	1.0140	1.0272	3.1805	11.6222	-120.0407	EFFP
		INCID	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	INCID
		DEVM	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	DEVM
		P 0	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	P 0
		P 1	14.555	14.695	14.695	14.695	14.695	14.695	14.572	14.230	14.230	P 1
		T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
		T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR C		PCT SPAN	95.00	90.01	85.00	70.01	50.02	30.02	15.01	10.00	4.98	PCT SPAN
		DIA	33.235	33.621	34.006	35.163	36.705	38.247	39.405	39.791	40.178	DIA
ROTOR -L.E.		BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1
ROTOR -T.E.		BETA 2	53.597	52.298	49.255	44.613	43.641	43.243	47.147	53.174	59.205	BETA 2
		BETA(PRI) 1	56.609	55.274	55.549	56.481	57.749	59.390	61.052	62.515	67.634	BETA(PRI) 1
		BETA(PRI) 2	20.737	24.568	24.870	25.757	29.414	33.583	38.287	41.777	43.580	BETA(PRI) 2
		V 1	360.49	383.83	384.69	385.47	385.41	378.59	365.91	347.86	278.05	V 1
		V 2	532.71	518.13	529.32	554.91	551.81	540.54	512.68	492.06	492.96	V 2
		VZ 1	360.47	383.82	384.68	385.43	385.22	378.14	365.24	347.15	277.41	VZ 1
		VZ 2	316.14	316.86	345.48	394.98	399.16	393.17	348.23	294.60	252.15	VZ 2
		V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1
		V-THETA 2	428.75	409.95	401.02	389.68	380.65	369.95	375.36	393.43	423.06	V-THETA 2
		VIPRI 1	655.0	673.8	680.0	698.0	722.0	742.9	754.9	752.5	729.3	VIPRI 1
		VIPRI 2	338.0	348.4	380.8	438.6	458.5	472.8	444.4	395.7	348.7	VIPRI 2
		VTHETA PR1	-546.9	-553.8	-560.7	-581.0	-610.5	-639.2	-660.3	-667.3	-674.2	VTHETA PR1
		VTHETA PR2	-119.7	-144.9	-160.1	-190.6	-225.0	-261.7	-274.9	-263.2	-239.9	VTHETA PR2
		U 1	546.88	553.78	560.75	581.90	610.52	639.16	660.33	667.28	674.17	U 1
		U 2	548.44	554.90	561.17	580.75	605.69	631.14	650.25	656.62	663.00	U 2
		M 1	0.3263	0.3479	0.3487	0.3495	0.3494	0.3431	0.3313	0.3147	0.2506	M 1
		M 2	0.4696	0.4566	0.4672	0.4915	0.4986	0.4782	0.4514	0.4320	0.4325	M 2
		M(PRI) 1	0.5929	0.6108	0.6165	0.6328	0.6544	0.6732	0.6836	0.6807	0.6573	M(PRI) 1
		M(PRI) 2	0.2980	0.3070	0.3361	0.3885	0.4060	0.4183	0.3913	0.3474	0.3060	M(PRI) 2
		TURN(PRI)	35.872	30.706	30.679	30.726	28.343	25.827	22.799	20.779	24.109	TURN(PRI)
		UUBAR	0.1718	0.2044	0.1542	0.0717	0.0668	0.0674	0.1408	0.2116	0.2192	UUBAR
		LOSS PARA	0.0464	0.0544	0.0415	0.0199	0.0171	0.0189	0.0386	0.0598	0.0569	LOSS PARA
		DFAC	0.6732	0.6611	0.6148	0.5430	0.5341	0.5304	0.5838	0.6574	0.7280	DFAC
		EFFP	0.8271	0.7778	0.8254	0.9339	0.9617	0.9649	0.8665	0.8189	0.8961	EFFP
		EFF	0.8217	0.7714	0.8202	0.9317	0.9604	0.9637	0.8622	0.8131	0.8924	EFF
		INCID	4.768	2.996	2.859	2.424	1.886	1.331	1.614	2.644	6.992	INCID
		DEVM	12.957	15.270	13.950	10.054	8.727	8.718	10.730	13.637	14.696	DEVM
		P 1	14.555	14.695	14.695	14.695	14.695	14.695	14.670	14.572	14.230	P 1
		P 2	18.090	17.945	18.100	18.460	18.580	18.590	18.375	18.165	18.180	P 2
		T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
		T 2	559.160	558.200	557.500	556.190	556.140	556.100	558.680	560.160	560.840	T 2
STATOR B		PCT SPAN	95.05	90.12	85.15	70.15	50.00	29.85	14.84	9.88	4.94	PCT SPAN
		DIA	33.203	33.556	33.910	34.981	36.420	37.859	38.930	39.285	39.637	DIA
STATOR-L.E.		BETA 2	53.046	51.706	48.724	44.301	43.255	42.731	46.436	52.268	57.991	BETA 2
STATOR-T.E.		BETA 2A	1.210	1.590	3.540	5.680	5.060	5.991	5.432	5.152	4.242	BETA 2A
		V 2	536.63	522.51	533.86	558.51	556.51	546.74	519.83	499.20	400.66	V 2
		V 2A	343.53	346.18	353.81	405.29	441.71	446.64	427.91	409.09	386.39	V 2A
		VZ 2	322.61	323.80	352.18	399.67	405.15	401.26	357.83	305.19	265.15	VZ 2
		VZ 2A	343.46	346.05	353.13	403.25	439.81	443.83	425.46	406.87	384.72	VZ 2A
		V-THETA 2	428.83	410.08	401.22	390.03	381.19	370.67	376.24	394.41	424.17	V-THETA 2
		V-THETA 2A	7.25	9.61	21.84	40.11	38.95	46.58	40.46	36.69	28.54	V-THETA 2A
		M 2	0.4732	0.4606	0.4714	0.4948	0.4930	0.4839	0.4580	0.4385	0.4395	M 2
		M 2A	0.2990	0.3016	0.3086	0.3550	0.3878	0.3923	0.3745	0.3571	0.3366	M 2A
		TURN(PRI)	51.836	50.116	45.184	38.615	38.175	36.698	40.942	47.047	53.677	TURN(PRI)
		UUBAR	0.1225	0.0634	0.1010	0.0844	0.0193	0.0116	0.0142	-0.0027	0.0775	UUBAR
		LOSS PARA	0.0396	0.0207	0.0332	0.0284	0.0068	0.0042	0.0054	-0.0010	0.0298	LOSS PARA
		DFAC	0.6142	0.5878	0.5716	0.4871	0.4237	0.4015	0.4226	0.4561	0.5355	DFAC
		EFFP	0.8076	0.8954	0.8334	0.8769	0.9525	0.9682	0.9594	1.0075	0.8218	EFFP
		INCID	6.075	5.505	3.254	0.626	1.003	0.331	3.063	8.338	13.458	INCID
		DEVM	14.241	14.444	16.274	18.014	17.178	18.664	18.935	18.953	18.387	DEVM
		P 2	18.090	17.945	18.100	18.460	18.580	18.590	18.375	18.165	18.180	P 2
		P 2A	17.775	17.791	17.842	18.220	18.525	18.558	18.340	18.171	18.005	P 2A
		T 2	559.160	558.200	557.500	556.190	556.140	556.100	558.680	560.160	560.840	T 2
		T 2A	559.160	558.200	557.500	556.190	556.140	556.100	558.680	560.160	560.840	T 2A
		UUBAR FS	0.1441	0.1460	0.1113	0.0803	0.0518	0.0611	0.0752	0.0716	0.1175	UUBAR FS
		P2 FS	18.155	18.180	18.130	18.447	18.677	18.735	18.537	18.365	18.282	P2 FS
		LOSS PARA FS	0.0465	0.0476	0.0365	0.0270	0.0182	0.0107	0.0285	0.0265	0.0451	LOSS PARA FS

Table A-3. Blade Element Performance (Continued)

Stage C Rotor C - Stator B										
CALCULATIONS USING TRANSLATED VALUES										
PERCENT EQUIVALENT ROTOR SPEED = 89.86 EQUIVALENT ROTOR SPEED = 3782.92 EQUIVALENT WEIGHT FLOW = 83.77										
INLET										
PCT SPAN	96.61	91.52	96.39	70.81	49.79	28.83	13.41	8.35	3.34	PCT SPAN
DIA	33.138	33.570	34.006	35.328	37.113	38.897	40.702	40.631	41.056	DIA
BETA 0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 0
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1
V 0	333.42	333.42	333.42	333.42	333.42	333.42	333.42	333.42	333.42	V 0
V 1	318.76	340.70	343.58	346.32	347.47	343.71	329.10	311.10	259.69	V 1
VZ 0	333.42	333.42	333.42	333.42	333.39	333.36	333.36	333.31	333.30	VZ 0
VZ 1	318.76	340.70	343.58	346.32	347.44	343.65	329.01	311.00	259.60	VZ 1
V-THETA 0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 0
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1
M 0	0.3014	0.3014	0.3014	0.3014	0.3014	0.3014	0.3014	0.3014	0.3014	M 0
M 1	0.2879	0.3081	0.3107	0.3132	0.3143	0.3108	0.2974	0.2809	0.2339	M 1
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR	0.1215	0.0056	0.0	0.0	0.0	0.0	0.0156	0.1070	0.3890	UUBAR
DFAC	0.044	-0.022	-0.030	-0.039	-0.042	-0.031	0.013	0.067	0.221	DFAC
EFFP	-2.7558	0.8914	0.9997	0.9997	1.0001	0.9999	2.3958	4.9473	28.2995	EFFP
INCID	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	INCID
DEVN	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	DEVN
P 0	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	P 0
P 1	14.585	14.689	14.694	14.694	14.694	14.694	14.680	14.598	14.345	P 1
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR C										
PCT SPAN	95.00	90.01	85.00	70.01	50.02	30.02	15.01	10.00	4.98	PCT SPAN
DIA	33.235	33.621	34.006	35.163	36.705	38.247	39.405	39.791	40.178	DIA
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1
BETA 2	54.838	54.159	51.824	46.974	45.640	45.742	54.935	59.844	64.112	BETA 2
BETA(PR) 1	58.549	57.183	57.286	58.040	59.238	60.704	62.538	64.077	68.136	BETA(PR) 1
BETA(PR) 2	20.957	25.539	25.457	26.390	28.921	33.231	42.148	42.060	42.530	BETA(PR) 2
V 1	334.59	357.22	360.27	363.18	363.67	359.14	343.91	329.09	271.21	V 1
VZ 1	528.45	508.93	519.57	542.69	550.38	538.49	486.39	498.75	510.42	VZ 1
VZ 2	334.54	357.22	360.27	363.14	363.49	358.72	343.28	328.42	270.59	VZ 2
VZ 2	304.33	298.00	321.13	370.25	384.64	375.47	279.18	250.35	222.71	VZ 2
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1
V-THETA 2	432.02	412.56	408.44	396.49	393.33	385.32	397.74	430.91	458.89	V-THETA 2
V(PR) 1	641.2	659.1	666.6	686.1	710.8	733.3	744.7	742.4	728.8	V(PR) 1
V(PR) 2	325.9	330.3	335.7	413.4	439.7	449.5	377.1	337.8	307.8	V(PR) 2
VTHETA PR1	-547.0	-553.9	-560.9	-582.1	-610.7	-639.3	-660.5	-667.5	-674.1	VTHETA PR1
VTHETA PR2	-116.4	-142.4	-152.9	-187.7	-212.5	-246.0	-252.7	-225.9	-204.3	VTHETA PR2
U 1	547.03	553.93	560.89	582.05	610.68	639.33	660.50	667.45	674.35	U 1
U 2	548.58	554.95	561.31	580.41	605.85	631.31	650.42	656.79	663.18	U 2
M 1	0.3024	0.3233	0.3261	0.3288	0.3293	0.3251	0.3110	0.2937	0.2444	M 1
M 2	0.4653	0.4478	0.4578	0.4797	0.4868	0.4756	0.4266	0.4374	0.4477	M 2
M(PR) 1	0.5796	0.5965	0.6035	0.6212	0.6435	0.6538	0.6735	0.6707	0.6549	M(PR) 1
M(PR) 2	0.2870	0.2906	0.3134	0.3654	0.3889	0.3969	0.3308	0.2962	0.2656	M(PR) 2
TURN(PR) 1	37.591	31.644	31.829	31.553	30.325	27.493	20.427	22.061	25.662	TURN(PR) 1
TURN(PR) 2	0.1644	0.2040	0.1743	0.0907	0.0690	0.0823	0.2351	0.2793	0.2792	TURN(PR) 2
LOSS PARA	0.0454	0.0538	0.0466	0.0250	0.0195	0.0232	0.0609	0.0734	0.0737	LOSS PARA
DFAC	0.0866	0.0827	0.0681	0.0570	0.0589	0.0562	0.0789	0.0788	0.0878	DFAC
EFFP	0.0746	0.0749	0.0810	0.0912	0.0909	0.0931	0.0915	0.0894	0.0898	EFFP
EFF	0.0191	0.0683	0.0905	0.0910	0.0955	0.0951	0.0781	0.0824	0.0889	EFF
INCID	6.707	4.925	4.596	3.984	3.176	2.645	3.101	4.299	7.495	INCID
DEVN	13.208	16.241	14.538	10.687	8.234	8.366	14.589	13.920	13.646	DEVN
P 1	14.585	14.689	14.694	14.694	14.694	14.694	14.680	14.598	14.345	P 1
P 2	18.200	18.000	18.119	19.466	18.700	18.714	18.205	18.350	18.497	P 2
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2	560.060	559.070	558.440	557.150	557.250	557.700	560.600	561.820	562.610	T 2
STATOR B										
PCT SPAN	95.05	90.12	85.15	70.15	50.00	29.85	14.84	9.88	4.94	PCT SPAN
DIA	33.203	33.556	33.910	34.981	36.420	37.859	38.930	39.285	39.637	DIA
BETA 2	54.257	53.531	51.249	46.641	45.229	45.188	54.036	58.678	62.592	BETA 2
BETA 2A	1.010	1.350	2.670	5.360	5.170	4.761	4.892	4.562	2.621	BETA 2A
V 2	532.37	513.19	523.98	546.16	555.05	544.63	492.97	506.05	518.61	V 2
VZ 2	331.18	326.59	329.74	380.72	421.23	420.63	391.71	373.73	360.73	VZ 2
VZ 2	310.99	305.04	327.97	374.94	390.76	383.54	289.26	262.87	238.57	VZ 2
VZ 2A	331.13	326.50	329.38	379.01	419.34	418.83	389.80	372.03	359.78	VZ 2A
V-THETA 2	432.10	412.70	408.44	397.05	393.89	386.07	398.67	431.98	460.10	V-THETA 2
V-THETA 2A	5.84	7.69	15.36	35.56	27.94	34.88	33.36	29.48	16.47	V-THETA 2A
M 2	0.4689	0.4517	0.4619	0.4829	0.4911	0.4813	0.4326	0.4441	0.4552	M 2
M 2A	0.2878	0.2840	0.2870	0.3327	0.3689	0.3683	0.3414	0.3250	0.3133	M 2A
TURN(PR) 1	53.247	52.181	48.579	41.275	40.038	40.385	49.084	54.053	59.903	TURN(PR) 1
UUBAR	0.1140	0.0515	0.0864	0.0797	0.0376	0.0405	-0.0546	0.0727	0.1645	UUBAR
LOSS PARA	0.0369	0.0168	0.0286	0.0269	0.0132	0.0148	-0.0206	0.0277	0.0635	LOSS PARA
DFAC	0.0371	0.0214	0.0182	0.0276	0.0467	0.0462	0.0872	0.0671	0.0369	DFAC
EFFP	0.0275	0.0197	0.0666	0.0575	0.0190	0.0082	1.1371	0.0513	0.7027	EFFP
INCID	7.286	7.330	5.779	2.966	2.977	2.789	10.666	14.754	18.067	INCID
DEVN	14.041	14.204	15.404	17.694	17.288	17.465	18.394	18.364	16.769	DEVN
P 2	18.200	18.000	18.119	19.466	18.700	18.714	18.205	18.350	18.497	P 2
P 2A	17.910	17.879	17.905	18.249	18.593	18.603	18.325	18.181	18.094	P 2A
T 2	560.060	559.070	558.440	557.150	557.250	557.700	560.600	561.820	562.610	T 2
T 2A	560.060	559.070	558.440	557.150	557.250	557.700	560.600	561.820	562.610	T 2A
UUBAR FS	0.1922	0.1603	0.1193	0.0918	0.0687	0.0753	0.0840	0.1146	0.1355	UUBAR FS
P2 FS	18.315	18.305	18.210	18.502	18.795	18.817	18.537	18.460	18.415	P2 FS
LOSS PARA FS	0.0492	0.0522	0.0393	0.0309	0.0241	0.0275	0.0316	0.0436	0.0523	LOSS PARA FS

Table A-3. Blade Element Performance (Continued)

Stage C Rotor C - Stator B											
CALCULATIONS USING TRANSLATED VALUES											
PERCENT EQUIVALENT ROTCR SPEED = 69.68 EQUIVALENT ROTOR SPEED = 2532.60 EQUIVALENT WEIGHT FLOW = 93.06											
INLET											
	PCT SPAN	56.61	91.52	86.39	70.81	49.79	28.83	13.41	8.35	3.34	PCT SPAN
	DIA	33.138	33.570	34.006	35.328	37.113	38.852	40.202	40.631	41.056	DIA
	BETA 0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 0
	BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1
	V 0	374.90	374.90	374.90	374.90	374.90	374.90	374.90	374.90	374.90	V 0
	V 1	376.47	389.54	390.03	386.20	364.59	379.72	370.29	356.29	304.48	V 1
	VZ 0	374.90	374.90	374.90	374.90	374.90	374.90	374.90	374.90	374.90	VZ 0
	VZ 1	376.47	389.54	390.03	386.19	364.56	379.65	370.19	356.18	304.38	VZ 1
	V-THETA 0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 0
	V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1
	M 0	0.3397	0.3397	0.3397	0.3397	0.3397	0.3397	0.3397	0.3397	0.3397	M 0
	M 1	0.3411	0.3533	0.3537	0.3502	0.3487	0.3441	0.3354	0.3225	0.2748	M 1
	TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
	UUBAR	0.0940	0.0800	0.0	0.0	0.0	0.0	0.0257	0.0949	0.3494	UUBAR
	DFAC	-0.004	-0.039	-0.040	-0.030	-0.026	-0.013	0.012	0.050	0.188	DFAC
	EFFP	0.0856	0.9129	1.0000	1.0002	0.9556	0.9956	2070.8372	15.4834	133.4277	EFFP
	INCID	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	INCID
	DEVM	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	DEVM
	P 0	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	P 0
	P 1	14.588	14.685	14.694	14.694	14.694	14.694	14.694	14.587	14.300	P 1
	T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
	T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR C											
	PCT SPAN	55.00	90.01	85.00	70.01	50.02	30.02	15.01	10.00	4.98	PCT SPAN
	DIA	33.235	33.621	34.006	35.163	36.705	38.247	39.405	39.791	40.178	DIA
	BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1
	BETA 2	33.983	30.882	29.801	29.060	28.052	26.669	26.356	26.496	27.505	BETA 2
	BETA(PR) 1	46.975	46.353	46.714	48.059	45.115	51.331	52.945	54.292	58.726	BETA(PR) 1
	BETA(PR) 2	24.842	24.462	23.819	26.417	30.706	34.803	36.001	38.461	48.126	BETA(PR) 2
	V 1	395.95	409.17	409.69	405.62	403.03	357.22	387.45	372.81	318.36	V 1
	V 2	451.22	476.21	454.62	489.34	472.80	458.23	461.67	441.32	355.36	V 2
	VZ 1	395.94	405.17	409.69	405.58	402.84	396.76	386.74	372.04	317.63	VZ 1
	VZ 2	374.15	408.70	429.20	427.67	416.58	408.67	412.76	393.97	314.32	VZ 2
	V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1
	V-THETA 2	252.20	244.43	245.82	237.64	222.19	205.36	204.50	196.39	163.66	V-THETA 2
	V(PR) 1	580.3	553.2	597.5	606.8	621.5	635.3	642.2	637.9	612.2	V(PR) 1
	V(PR) 2	412.3	449.0	469.2	477.6	485.3	458.6	511.1	504.1	471.6	V(PR) 2
	VTHETA PR1	-424.2	-429.6	-435.0	-451.4	-473.6	-495.8	-512.2	-517.6	-522.9	VTHETA PR1
	VTHETA PR2	-173.2	-185.9	-189.5	-212.5	-247.6	-284.2	-299.9	-312.9	-350.6	VTHETA PR2
	U 1	424.21	425.56	434.56	451.37	473.57	495.79	512.21	517.60	522.95	U 1
	U 2	425.42	430.35	435.29	450.10	469.83	489.57	504.39	509.33	514.28	U 2
	M 1	0.3592	0.3715	0.3720	0.3682	0.3658	0.3604	0.3513	0.3377	0.2875	M 1
	M 2	0.4032	0.4266	0.4441	0.4394	0.4241	0.4107	0.4138	0.3948	0.3163	M 2
	M(PR) 1	0.5265	0.5387	0.5426	0.5505	0.5644	0.5764	0.5823	0.5779	0.5529	M(PR) 1
	M(PR) 2	0.3684	0.4022	0.4213	0.4289	0.4353	0.4469	0.4581	0.4510	0.4198	M(PR) 2
	TURN(PR)	22.131	21.931	22.855	21.644	18.517	16.546	16.971	15.863	10.643	TURN(PR)
	UUBAR	0.1814	0.1165	0.0724	0.0686	0.0780	0.0742	0.0637	0.0705	0.0821	UUBAR
	LOSS PARA	0.0475	0.0310	0.0196	0.0189	0.0216	0.0206	0.0180	0.0195	0.0196	LOSS PARA
	DFAC	0.4151	0.3638	0.3368	0.3332	0.3343	0.3235	0.3146	0.3178	0.3246	DFAC
	EFFP	0.6696	0.7631	0.8878	0.9167	0.8802	0.8603	0.8847	0.8265	0.6851	EFFP
	EFF	0.6655	0.7599	0.8861	0.9154	0.8785	0.8563	0.8830	0.8241	0.6816	EFF
	INCID	-4.867	-5.885	-5.976	-5.997	-6.449	-6.721	-6.499	-5.586	-1.928	INCID
	DEVM	17.053	15.164	12.900	10.714	10.018	9.937	8.446	10.323	19.242	DEVM
	P 1	14.588	14.685	14.694	14.694	14.694	14.694	14.665	14.587	14.300	P 1
	P 2	15.910	16.150	16.320	16.325	16.240	16.175	16.220	16.060	15.466	P 2
	T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
	T 2	538.260	537.500	536.520	536.000	535.820	535.510	535.860	536.240	535.850	T 2
STATOR B											
	PCT SPAN	55.05	50.12	85.15	70.15	50.00	29.85	14.84	9.88	4.94	PCT SPAN
	DIA	33.203	33.556	33.910	34.981	36.420	37.855	38.930	39.285	39.637	DIA
	BETA 2	33.724	30.617	29.545	28.895	27.854	26.417	26.040	26.160	27.156	BETA 2
	BETA 2A	5.460	5.730	6.041	6.941	7.071	7.462	7.463	7.354	6.323	BETA 2A
	V 2	454.34	480.10	498.76	492.33	476.53	463.05	467.84	447.54	360.39	V 2
	V 2A	457.83	483.44	492.71	510.32	516.58	518.42	524.39	511.16	471.01	V 2A
	VZ 2	377.88	413.17	433.89	430.96	421.07	414.20	419.52	400.81	319.89	VZ 2
	VZ 2A	455.75	481.02	489.97	506.53	512.45	513.61	519.30	506.25	467.42	VZ 2A
	V-THETA 2	252.25	244.51	245.94	237.86	222.51	205.76	204.58	196.88	164.09	V-THETA 2
	V-THETA 2A	43.56	48.27	51.85	61.66	62.57	67.27	68.03	65.33	51.79	V-THETA 2A
	M 2	0.4060	0.4302	0.4480	0.4422	0.4276	0.4152	0.4155	0.4005	0.3209	M 2
	M 2A	0.4093	0.4333	0.4423	0.4591	0.4650	0.4665	0.4723	0.4597	0.4224	M 2A
	TURN(PR)	28.264	24.886	23.504	21.950	20.767	18.524	18.531	18.755	20.771	TURN(PR)
	UUBAR	0.1932	0.1918	0.2167	0.1467	0.0938	0.0762	0.0919	0.1041	-0.0752	UUBAR
	LOSS PARA	0.0623	0.0623	0.0709	0.0493	0.0328	0.0277	0.0345	0.0395	-0.0289	LOSS PARA
	DFAC	0.1411	0.1266	0.1405	0.0851	0.0341	-0.0050	-0.0091	-0.0287	-0.1853	DFAC
	EFFP	12.7772	15.5363	-6.8113	2.8236	1.4955	1.2765	1.3377	1.3187	0.8984	EFFP
	INCID	-13.247	-15.585	-15.925	-14.779	-14.354	-15.573	-17.319	-17.756	-17.369	INCID
	DEVM	18.491	18.584	18.775	19.274	19.188	20.164	20.964	21.151	20.465	DEVM
	P 2	15.910	16.150	16.320	16.325	16.240	16.175	16.220	16.060	15.466	P 2
	P 2A	15.580	15.780	15.865	16.024	16.000	16.037	16.050	15.885	15.540	P 2A
	T 2	538.260	537.500	536.520	536.000	535.820	535.510	535.860	536.240	535.850	T 2
	T 2A	538.260	537.530	536.560	536.000	535.820	535.500	535.880	536.240	535.840	T 2A
	UUBAR FS	0.2195	0.1915	0.1921	0.1892	0.1609	0.1619	0.1340	0.1325	0.2354	UUBAR FS
	P2 FS	15.967	16.167	16.137	16.432	16.392	16.360	16.310	16.115	15.892	P2 FS
	LOSS PARA FS	0.0707	0.0621	0.0464	0.0635	0.0561	0.0588	0.0503	0.0502	0.0904	LOSS PARA FS

Table A-3. Blade Element Performance (Continued)

Stage C Rotor C - Stator B											
CALCULATIONS USING TRANSLATED VALUES											
PERCENT EQUIVALENT ROTOR SPEED = 69.65 EQUIVALENT ROTOR SPEED = 2932.12 EQUIVALENT WEIGHT FLOW = 86.79											
INLET											
PCT SPAN	96.61	91.52	86.39	70.81	49.79	28.83	13.41	8.35	3.34	PCT SPAN	
DIA	33.138	33.570	34.006	35.328	37.113	38.892	40.202	40.631	41.056	DIA	
BETA 0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 0	
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1	
V 0	346.71	346.71	346.71	346.71	346.71	346.71	346.71	346.71	346.71	V 0	
V 1	345.94	351.91	353.59	356.97	358.79	354.13	344.89	335.18	281.95	V 1	
VZ 0	346.71	346.71	346.71	346.70	346.68	346.65	346.61	346.60	346.59	VZ 0	
VZ 1	345.93	351.91	353.59	356.96	358.76	354.06	344.79	335.07	281.85	VZ 1	
V-THETA 0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 0	
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1	
M 0	0.3136	0.3136	0.3136	0.3136	0.3136	0.3136	0.3136	0.3136	0.3136	M 0	
M 1	0.3129	0.3184	0.3199	0.3231	0.3248	0.3204	0.3119	0.3030	0.2542	M 1	
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN	
UUBAR	0.0403	0.0	0.0	0.0	0.0	0.0	0.0155	0.0640	0.3511	UUBAR	
DFAC	0.002	-0.015	-0.020	-0.030	-0.035	-0.021	0.005	0.033	0.187	DFAC	
EFFP	-0.1292	0.5989	0.9993	0.9994	0.9999	0.9999	-2.3937	16.5132	-133.8855	EFFP	
INCID	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	INCID	
DEVM	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	DEVM	
P C	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	P C	
P 1	14.655	14.694	14.694	14.694	14.694	14.694	14.679	14.632	14.354	P 1	
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0	
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1	
ROTOR C											
PCT SPAN	95.00	90.01	85.00	70.01	50.02	30.02	15.01	10.00	4.98	PCT SPAN	
DIA	33.235	33.621	34.006	35.163	36.705	38.247	39.405	39.791	40.178	DIA	
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1	
BETA 2	39.152	37.696	34.133	34.022	32.384	31.495	31.013	32.380	36.204	BETA 2	
RETA(IPR) 1	49.400	49.314	49.532	50.308	51.577	53.275	54.892	55.938	60.648	RETA(IPR) 1	
RETA(IPR) 2	24.524	22.820	23.680	25.693	29.767	32.870	35.912	38.554	48.225	RETA(IPR) 2	
V 1	363.43	369.11	370.89	374.47	375.66	370.14	360.57	350.48	294.61	V 1	
V 2	431.61	455.45	470.80	469.53	461.21	456.47	444.73	422.17	344.86	V 2	
VZ 1	363.41	369.11	370.88	374.44	375.47	369.70	359.91	349.77	293.94	VZ 1	
VZ 2	334.70	360.38	389.70	389.10	389.33	388.71	380.38	355.72	277.64	VZ 2	
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1	
V-THETA 2	272.51	278.50	264.17	262.66	246.92	238.15	228.67	225.57	203.23	V-THETA 2	
V(IPR) 1	558.4	566.2	571.5	586.3	604.3	618.5	626.2	624.9	600.0	V(IPR) 1	
V(IPR) 2	367.9	391.0	425.5	431.9	448.8	463.4	470.5	455.8	417.4	V(IPR) 2	
VTHTA PR1	-424.0	-429.3	-434.7	-451.1	-473.3	-495.5	-511.9	-517.3	-522.7	VTHTA PR1	
VTHTA PR2	-152.7	-151.6	-170.9	-187.2	-222.7	-251.2	-275.5	-283.5	-310.8	VTHTA PR2	
U 1	424.00	429.35	434.74	451.15	473.34	495.54	511.95	517.34	522.68	U 1	
U 2	425.21	430.14	435.07	449.87	469.59	489.32	504.14	509.08	514.02	U 2	
M 1	0.3290	0.3343	0.3359	0.3393	0.3404	0.3353	0.3264	0.3171	0.2658	M 1	
M(IPR) 1	0.3846	0.4069	0.4215	0.4205	0.4129	0.3976	0.3976	0.3767	0.3063	M(IPR) 1	
M(IPR) 2	0.5056	0.5128	0.5176	0.5312	0.5475	0.5602	0.5668	0.5653	0.5412	M(IPR) 2	
TURN(IPR)	0.3278	0.3493	0.3809	0.3868	0.4017	0.4149	0.4206	0.4067	0.3707	TURN(IPR)	
UUBAR	24.875	26.494	25.853	24.618	21.817	20.421	19.007	17.417	12.467	UUBAR	
LOSS PARA	0.1851	0.1457	0.0643	0.0626	0.0498	0.0491	0.0522	0.0891	0.1058	LOSS PARA	
DFAC	0.0486	0.0393	0.0175	0.0173	0.0139	0.0139	0.0148	0.0247	0.0253	DFAC	
EFFP	0.4423	0.4535	0.3924	0.4010	0.3884	0.3798	0.3753	0.3974	0.4247	EFFP	
INCID	0.7016	0.8155	0.9159	0.9712	0.9683	1.0100	0.9540	0.8725	0.7733	INCID	
DEVM	0.6974	0.8127	0.9145	0.9707	0.9678	1.0102	0.9532	0.8705	0.7702	DEVM	
P 1	-2.442	-2.964	-3.158	-3.748	-4.487	-4.787	-4.551	-3.939	-0.004	P 1	
P 2	16.774	13.522	12.761	9.990	8.080	8.005	8.357	10.416	19.342	P 2	
T 1	14.655	14.694	14.694	14.694	14.694	14.694	14.679	14.632	14.354	T 1	
T 2	16.158	16.367	16.501	16.556	16.545	16.551	16.498	16.318	15.802	T 2	
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1	
T 2	539.740	538.670	537.810	537.230	537.180	536.460	537.170	537.560	537.450	T 2	
STATOR B											
PCT SPAN	95.05	90.12	85.15	70.15	50.00	29.85	14.84	9.88	4.94	PCT SPAN	
DIA	33.203	33.556	33.910	34.981	36.420	37.859	38.930	39.285	39.637	DIA	
BETA 2	38.846	37.361	33.838	33.827	32.152	31.188	30.638	31.963	35.720	BETA 2	
BETA 2A	4.120	4.710	5.579	5.660	5.051	5.991	6.552	6.002	4.622	BETA 2A	
V 2	434.54	455.09	474.64	472.33	464.91	461.31	450.57	428.01	349.72	V 2	
V 2A	381.97	404.42	413.52	445.34	448.26	449.63	448.05	431.13	402.36	V 2A	
VZ 2	338.43	344.90	394.25	392.32	393.39	394.17	386.98	362.40	283.36	VZ 2	
VZ 2A	390.98	403.05	411.56	443.12	446.34	446.80	444.57	428.17	400.43	VZ 2A	
V-THETA 2	272.56	278.59	264.30	262.90	247.27	238.61	229.20	226.13	203.76	V-THETA 2	
V-THETA 2A	27.44	32.21	40.20	43.92	39.45	46.89	51.06	45.02	32.07	V-THETA 2A	
M 2	0.3873	0.4103	0.4250	0.4231	0.4162	0.4132	0.4030	0.3821	0.3107	M 2	
M 2A	0.3392	0.3601	0.3687	0.3981	0.4009	0.4024	0.4007	0.3849	0.3586	M 2A	
TURN(IPR)	34.726	32.651	28.258	28.162	27.084	25.161	24.032	25.899	31.023	TURN(IPR)	
UUBAR	0.1071	0.1340	0.1525	0.0511	0.0452	0.0665	0.0785	0.0812	-0.1515	UUBAR	
LOSS PARA	0.0346	0.0436	0.0500	0.0172	0.0158	0.0242	0.0295	0.0309	-0.0584	LOSS PARA	
DFAC	0.3036	0.2937	0.2845	0.2146	0.1939	0.1786	0.1562	0.1557	0.0402	DFAC	
EFFP	0.5553	0.4382	0.4073	0.5725	0.4021	-0.2396	-5.5901	6.2298	0.5552	EFFP	
INCID	-8.125	-8.840	-11.632	-9.848	-10.098	-11.206	-12.727	-11.961	-8.816	INCID	
DEVM	17.191	17.564	18.313	17.993	17.168	18.694	20.054	19.802	18.767	DEVM	
P 2	16.158	16.367	16.501	16.556	16.545	16.551	16.498	16.318	15.802	P 2	
P 2A	15.988	16.127	16.207	16.458	16.461	16.429	16.361	16.191	15.957	P 2A	
T 2	539.740	538.670	537.810	537.230	537.180	536.460	537.170	537.560	537.450	T 2	
T 2A	539.740	538.670	537.810	537.230	537.180	536.460	537.170	537.560	537.450	T 2A	
UUBAR FS	0.1521	0.1293	0.1398	0.0820	0.0689	0.0810	0.0873	0.1080	0.1881	UUBAR FS	
P2 FS	16.222	16.337	16.472	16.642	16.592	16.580	16.514	16.365	16.229	P2 FS	
LOSS PARA FS	0.0491	0.0420	0.0458	0.0309	0.0240	0.0294	0.0328	0.0410	0.0725	LOSS PARA FS	

Table A-3. Blade Element Performance (Continued)

Stage C Rotor C - Stator B CALCULATIONS USING TRANSLATED VALUES PERCENT EQUIVALENT ROTOR SPEED = 69.55 EQUIVALENT ROTOR SPEED = 2928.03 EQUIVALENT WEIGHT FLOW = 79.76										
INLET										
PCT SPAN	56.01	91.52	66.39	70.61	49.79	28.83	13.41	8.35	3.34	PCT SPAN
DIA	32.135	33.570	34.305	35.328	37.113	38.892	40.202	40.631	41.056	DIA
BETA 0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 0
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1
V 0	316.02	316.02	316.02	316.02	316.02	316.02	316.02	316.02	316.02	V 0
V 1	316.07	323.61	325.25	328.77	326.47	319.19	310.83	300.43	247.26	V 1
VZ 0	316.02	316.02	316.02	316.02	315.99	315.96	315.93	315.92	315.91	VZ 0
VZ 1	316.07	323.61	325.25	328.76	326.44	319.13	310.75	300.34	247.18	VZ 1
V-THETA 0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 0
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1
M 0	0.2854	0.2854	0.2854	0.2854	0.2854	0.2854	0.2854	0.2854	0.2854	M 0
M 1	0.2854	0.2923	0.2938	0.2971	0.2950	0.2883	0.2806	0.2711	0.2226	M 1
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR	0.0469	0.0	0.0	0.0	0.0	0.0	0.0161	0.0904	0.3912	UUBAR
UFAC	0.000	0.004	0.0029	0.0040	0.0033	0.010	0.016	0.049	0.218	UFAC
EFFP	0.0074	0.0996	0.0999	0.0993	1.0000	0.9992	1.9108	10.9103	73.7900	EFFP
INCID	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	INCID
DEVN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	DEVN
P 0	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	P 0
P 1	14.661	14.694	14.694	14.694	14.694	14.694	14.681	14.621	14.378	P 1
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR C										
PCT SPAN	55.00	90.01	65.00	70.01	50.02	30.02	15.01	10.00	4.98	PCT SPAN
DIA	33.235	33.021	34.000	35.163	36.705	38.247	39.405	39.791	40.178	DIA
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1
BETA 2	44.935	41.935	39.261	37.653	36.816	36.288	36.447	39.489	44.375	BETA 2
BETA(PRI) 1	51.923	51.658	51.864	52.592	54.168	56.071	57.627	58.769	63.734	BETA(PRI) 1
BETA(PRI) 2	23.360	24.735	24.292	25.637	29.736	33.280	36.745	39.422	46.272	BETA(PRI) 2
V 1	331.73	339.12	340.85	344.58	341.48	333.28	324.69	313.90	258.18	V 1
VZ 1	331.73	339.12	340.85	344.58	341.48	333.28	324.69	313.90	258.18	VZ 1
VZ 2	297.10	316.06	342.45	358.96	359.32	351.38	338.98	308.84	253.63	VZ 2
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1
V-THETA 2	250.22	283.93	279.93	276.97	265.97	258.00	250.35	254.48	248.16	V-THETA 2
V(PRI) 1	537.9	548.6	552.0	567.2	583.1	596.0	605.6	604.5	582.3	V(PRI) 1
V(PRI) 2	323.7	340.0	375.7	398.2	439.5	420.9	423.8	400.6	367.5	V(PRI) 2
VTHETA PRI	-423.4	-428.7	-434.1	-450.5	-472.7	-494.8	-511.2	-516.6	-522.0	VTHETA PRI
VTHETA PR2	-126.4	-145.0	-154.6	-172.3	-203.0	-230.6	-253.1	-253.9	-265.2	VTHETA PR2
U 1	423.41	428.75	434.14	450.52	472.68	494.85	511.24	516.62	521.95	U 1
U 2	424.61	429.54	434.40	449.24	468.94	488.64	503.43	508.37	513.31	U 2
M 1	0.2998	0.3006	0.3002	0.3116	0.3088	0.3012	0.2933	0.2834	0.2325	M 1
M 2	0.3733	0.3763	0.3945	0.4050	0.3963	0.3895	0.3761	0.3564	0.3151	M 2
M(PRI) 1	0.4961	0.4942	0.4991	0.5130	0.5273	0.5392	0.5471	0.5458	0.5244	M(PRI) 1
M(PRI) 2	0.2860	0.3098	0.3351	0.3557	0.3654	0.3755	0.3775	0.3561	0.3258	M(PRI) 2
TURN(PRI)	28.555	26.922	27.572	26.957	24.440	22.806	20.912	19.383	17.510	TURN(PRI)
UUBAR	0.1785	0.1426	0.0817	0.0451	0.0498	0.0551	0.0727	0.1235	0.1336	UUBAR
LOSS PARA	0.0473	0.0379	0.0221	0.0125	0.0139	0.0155	0.0204	0.0337	0.0331	LOSS PARA
UFAC	0.5574	0.5155	0.4695	0.4476	0.4441	0.4395	0.4436	0.4852	0.5203	UFAC
EFFP	0.7793	0.7940	0.8852	0.9724	0.9605	0.9804	0.9180	0.8457	0.8225	EFFP
EFF	0.7750	0.7915	0.8832	0.9719	0.9570	0.9801	0.9165	0.8430	0.8196	EFF
INCID	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	INCID
DEVN	15.616	15.437	13.373	9.934	9.048	8.416	9.189	11.284	17.388	DEVN
P 1	14.601	14.694	14.694	14.694	14.694	14.694	14.681	14.621	14.378	P 1
P 2	16.390	16.438	16.560	16.728	16.713	16.715	16.640	16.475	16.163	P 2
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2	540.340	540.340	539.380	538.840	538.950	538.550	539.320	540.050	540.220	T 2
STATOR 3										
PCT SPAN	55.05	90.12	65.15	70.15	50.00	29.85	14.84	9.88	4.94	PCT SPAN
DIA	33.265	33.556	34.913	34.981	36.420	37.859	38.930	39.285	39.637	DIA
BETA 2	44.550	41.550	39.910	37.430	36.548	35.930	35.999	38.962	43.730	BETA 2
BETA 2A	2.410	3.300	4.430	5.390	4.491	4.911	5.742	5.042	4.232	BETA 2A
V 2	422.41	428.17	445.80	456.12	447.49	440.99	427.61	406.39	360.51	V 2
V 2A	320.64	343.72	358.70	390.19	399.96	401.86	397.28	379.91	353.15	V 2A
VZ 2	321.09	320.40	346.85	362.13	359.32	356.70	345.39	315.47	260.10	VZ 2
VZ 2A	320.11	343.13	357.62	388.42	396.57	400.05	394.79	377.91	351.63	VZ 2A
V-THETA 2	250.27	284.03	289.64	277.42	260.35	258.50	250.94	255.11	248.81	V-THETA 2
V-THETA 2A	14.43	20.14	27.71	36.65	31.30	34.38	39.70	33.34	26.02	V-THETA 2A
M 2	0.3759	0.3813	0.3977	0.4075	0.3995	0.3536	0.3810	0.3614	0.3196	M 2
M 2A	0.2891	0.3045	0.3183	0.3470	0.3559	0.3578	0.3533	0.3373	0.3130	M 2A
TURN(PRI)	41.128	38.196	34.486	32.046	32.038	30.979	30.198	33.850	39.417	TURN(PRI)
UUBAR	0.1247	0.0911	0.1139	0.0548	0.0075	0.0225	0.0303	0.0134	-0.0950	UUBAR
LOSS PARA	0.0443	0.0297	0.0374	0.0185	0.0026	0.0082	0.0114	0.0051	-0.0366	LOSS PARA
UFAC	0.4360	0.3486	0.3623	0.3237	0.2914	0.2760	0.2590	0.2751	0.2608	UFAC
EFFP	0.7051	0.7574	0.6954	0.8087	0.8653	0.8760	0.7918	0.8998	0.8281	EFFP
INCID	-2.433	-4.045	-6.554	-6.240	-5.703	-6.467	-7.371	-4.969	-0.812	INCID
DEVN	16.441	16.214	17.164	17.724	16.609	17.615	19.245	18.843	18.377	DEVN
P 2	16.390	16.438	16.586	16.728	16.713	16.715	16.640	16.475	16.163	P 2
P 2A	16.200	16.295	16.391	16.629	16.700	16.677	16.592	16.456	16.268	P 2A
T 2	540.340	540.340	539.380	538.840	538.950	538.550	539.320	540.050	540.220	T 2
T 2A	540.340	540.340	539.380	538.840	538.950	538.550	539.320	540.050	540.220	T 2A
UUBAR FS	0.1484	0.1229	0.0921	0.0737	0.0349	0.0727	0.1137	0.0999	0.1688	UUBAR FS
PZ FS	16.592	16.494	16.555	16.764	16.762	16.784	16.762	16.592	16.505	PZ FS
LOSS PARA FS	0.0479	0.0400	0.0302	0.0248	0.0120	0.0264	0.0427	0.0380	0.0650	LOSS PARA FS
STATOR L.E.										
STATOR T.E.										

Table A-3. Blade Element Performance (Continued)

Stage C Rotor C - Stator B CALCULATIONS USING TRANSLATED VALUES PERCENT EQUIVALENT ROTOR SPEED = 69.57 EQUIVALENT ROTOR SPEED = 2928.71 EQUIVALENT WEIGHT FLOW = 73.55											
INLET											
PCT SPAN	96.61	91.52	86.39	70.81	49.79	28.83	13.41	8.35	3.34	PCT SPAN	
DIA	33.138	33.570	34.006	35.328	37.113	38.892	40.202	40.631	41.056	DIA	
BETA 0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 0	
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1	
V 0	289.55	289.55	289.55	289.55	289.55	289.55	289.55	289.55	289.55	V 0	
V 1	278.47	300.03	302.36	307.38	306.78	302.00	292.29	276.03	225.82	V 1	
VZ 0	289.55	289.55	289.55	289.55	289.53	289.50	289.47	289.46	289.45	VZ 0	
VZ 1	278.47	300.02	302.35	307.37	306.75	301.94	292.21	275.94	225.74	VZ 1	
V-THETA 0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 0	
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1	
M 0	0.2611	0.2611	0.2611	0.2611	0.2611	0.2611	0.2611	0.2611	0.2611	M 0	
M 1	0.2510	0.2707	0.2728	0.2774	0.2769	0.2725	0.2638	0.2488	0.2031	M 1	
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN	
UUBAR	0.1382	-0.0029	-0.0029	-0.0029	-0.0029	-0.0029	0.0103	0.1073	0.4116	UUBAR	
DFAC	0.038	-0.036	-0.044	-0.062	-0.059	-0.043	-0.009	0.047	0.220	DFAC	
EFFP	-1.2634	1.0398	1.0325	1.0230	1.0234	1.0330	0.6560	-6.9012	-31.5979	EFFP	
INCID	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	INCID	
DEVH	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	DEVH	
P 0	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	P 0	
P 1	14.600	14.696	14.696	14.696	14.696	14.696	14.687	14.621	14.414	P 1	
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0	
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1	
ROTOR C											
PCT SPAN	95.00	90.01	85.00	70.01	50.02	30.02	15.01	10.00	4.98	PCT SPAN	
DIA	33.235	33.621	34.006	35.163	36.705	38.247	39.405	39.791	40.178	DIA	
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1	
BETA 2	48.650	46.131	43.167	41.126	40.308	39.687	40.465	44.034	48.547	BETA 2	
BETA(PRI) 1	55.417	53.768	53.896	54.454	55.860	57.538	59.219	60.899	65.752	BETA(PRI) 1	
BETA(PRI) 2	22.030	24.549	24.297	25.241	29.255	33.373	37.007	40.915	46.924	BETA(PRI) 2	
V 1	291.98	314.24	316.70	322.00	320.75	315.24	305.16	288.21	235.70	V 1	
V 2	417.20	414.12	428.82	443.71	436.93	427.15	412.59	386.38	352.80	V 2	
VZ 1	291.97	314.24	316.70	321.97	320.59	314.87	304.60	287.62	235.16	VZ 1	
VZ 2	275.63	286.99	312.76	334.19	333.03	328.35	313.39	277.32	233.20	VZ 2	
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1	
V-THETA 2	313.19	298.55	293.37	291.80	282.50	272.47	267.33	268.13	264.02	V-THETA 2	
V(PRI) 1	514.4	531.7	537.5	553.8	571.3	586.8	595.5	591.7	572.8	V(PRI) 1	
V(PRI) 2	257.3	315.5	343.2	369.5	382.0	393.7	393.1	367.6	342.0	V(PRI) 2	
VTHETA PRI	-423.5	-428.8	-434.2	-450.6	-472.8	-495.0	-511.4	-516.7	-522.1	VTHETA PRI	
VTHETA PR2	-111.5	-131.1	-141.2	-157.5	-186.3	-216.3	-236.2	-240.4	-249.4	VTHETA PR2	
U 1	423.50	428.85	434.24	450.62	472.79	494.96	511.35	516.74	522.07	U 1	
U 2	424.71	429.64	434.57	449.35	469.05	488.75	503.55	508.48	513.43	U 2	
M 1	0.2633	0.2837	0.2860	0.2909	0.2897	0.2847	0.2754	0.2599	0.2121	M 1	
M 2	0.3707	0.3682	0.3819	0.3958	0.3895	0.3806	0.3669	0.3428	0.3123	M 2	
M(PRI) 1	0.4640	0.4800	0.4853	0.5003	0.5160	0.5299	0.5374	0.5336	0.5154	M(PRI) 1	
M(PRI) 2	0.2642	0.2805	0.3055	0.3236	0.3405	0.3508	0.3496	0.3261	0.3028	M(PRI) 2	
TURN(PRI)	33.387	29.219	29.599	29.216	26.612	24.184	22.243	20.024	18.880	TURN(PRI)	
UUBAR	0.1585	0.1636	0.1074	0.0566	0.0573	0.0603	0.0861	0.1339	0.1313	UUBAR	
LOSS PARA	0.0424	0.0435	0.0290	0.0157	0.0161	0.0170	0.0240	0.0358	0.0321	LOSS PARA	
DFAC	0.5980	0.5710	0.5233	0.4946	0.4901	0.4847	0.4955	0.5377	0.5667	DFAC	
EFFP	0.5219	0.9005	0.8804	0.9401	0.9905	0.9949	0.9196	0.8436	0.8450	EFFP	
EFF	0.9187	0.7971	0.8783	0.9899	0.9903	0.9948	0.9181	0.8403	0.8421	EFF	
INCID	3.575	1.490	1.206	0.398	-0.204	-0.522	-0.221	1.027	5.107	INCID	
DEVH	14.260	15.251	13.378	9.539	8.568	8.508	9.451	12.776	18.040	DEVH	
P 1	14.600	14.696	14.696	14.696	14.696	14.687	14.621	14.414	14.414	P 1	
P 2	16.532	16.520	16.640	16.827	16.941	16.836	16.768	16.593	16.365	P 2	
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1	
T 2	541.600	540.820	540.040	539.370	539.490	539.350	540.500	541.300	541.450	T 2	
STATOR B											
PCT SPAN	95.05	90.12	85.15	70.15	50.00	29.35	14.84	9.88	4.94	PCT SPAN	
DIA	33.203	33.556	34.910	34.981	36.420	37.859	38.930	39.285	39.637	DIA	
BETA 2	48.229	45.696	42.777	40.883	40.007	39.288	39.955	43.427	47.805	BETA 2	
BETA 2A	3.610	4.030	4.690	5.980	4.721	5.141	5.982	5.752	4.772	BETA 2A	
V 2	420.00	417.32	432.18	446.29	440.26	431.55	417.86	391.58	357.79	V 2	
VZ 2A	303.38	313.58	325.66	359.78	375.20	375.53	355.65	337.00	315.32	VZ 2A	
VZ 2	279.79	291.48	317.22	337.38	337.07	333.69	319.85	289.98	239.98	VZ 2	
VZ 2A	302.77	312.80	324.57	357.78	373.77	373.71	353.27	334.94	313.74	VZ 2A	
V-THETA 2	313.24	298.65	293.51	292.07	282.90	273.00	267.95	268.80	264.71	V-THETA 2	
V-THETA 2A	19.10	22.04	26.62	37.48	30.66	33.62	37.02	33.73	26.19	V-THETA 2A	
M 2	0.3733	0.3711	0.3850	0.3982	0.3926	0.3847	0.3717	0.3475	0.3168	M 2	
M 2A	0.2678	0.2772	0.2883	0.3192	0.3332	0.3335	0.3152	0.2981	0.2786	M 2A	
TURN(PRI)	44.618	41.666	38.086	34.897	35.266	34.105	33.912	37.605	42.954	TURN(PRI)	
UUBAR	0.1233	0.0721	0.0946	0.0614	0.0065	0.0159	0.0839	0.0572	-0.0018	UUBAR	
LOSS PARA	0.0398	0.0235	0.0311	0.0207	0.0023	0.0058	0.0315	0.0218	-0.0007	LOSS PARA	
DFAC	0.5044	0.4651	0.4501	0.3876	0.3502	0.3342	0.3592	0.3703	0.3780	DFAC	
EFFP	0.7545	0.8427	0.7927	0.8350	0.9778	0.9383	0.7114	0.7898	1.0081	EFFP	
INCID	1.257	-0.505	-2.694	-2.793	-2.245	-3.111	-3.418	-0.505	3.265	INCID	
DEVH	16.641	16.854	17.424	18.313	16.839	17.845	19.485	19.552	18.917	DEVH	
P 2	16.532	16.520	16.640	16.827	16.841	16.836	16.768	16.583	16.365	P 2	
P 2A	16.345	16.412	16.487	16.720	16.830	16.810	16.640	16.507	16.367	P 2A	
T 2	541.600	540.820	540.040	539.370	539.490	539.350	540.500	541.300	541.450	T 2	
T 2A	541.600	540.820	540.040	539.370	539.490	539.350	540.500	541.300	541.450	T 2A	
UUBAR FS	0.1221	0.1273	0.0959	0.0683	0.0357	0.0626	0.1292	0.1624	0.2171	UUBAR FS	
P2 FS	16.530	16.615	16.642	16.840	16.892	16.917	16.847	16.750	16.672	P2 FS	
LOSS PARA FS	0.0394	0.0414	0.0315	0.0230	0.0126	0.0228	0.0485	0.0618	0.0844	LOSS PARA FS	

Table A-3. Blade Element Performance (Continued)

Stage C Rotor C - Stator B										
CALCULATIONS USING TRANSLATED VALUES										
PERCENT EQUIVALENT ROTOR SPEED = 69.58 EQUIVALENT ROTOR SPEED = 2929.13 EQUIVALENT WEIGHT FLOW = 68.37										
INLET										
PCT SPAN	56.61	91.52	80.39	70.81	49.79	28.83	13.41	8.35	3.34	PCT SPAN
DIA	33.136	33.570	34.000	35.328	37.113	38.892	40.202	40.631	41.056	DIA
BETA 0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 0
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1
V 0	267.90	267.90	267.90	267.90	267.90	267.90	267.90	267.90	267.90	V 0
V 1	258.96	272.47	273.94	278.31	280.89	275.51	267.15	244.89	195.78	V 1
VZ 0	267.90	267.90	267.90	267.90	267.89	267.85	267.82	267.81	267.80	VZ 0
VZ 1	258.96	272.47	273.94	278.30	280.87	275.45	267.07	244.81	195.71	VZ 1
V-THETA 0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 0
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1
M 0	0.2414	0.2414	0.2414	0.2414	0.2414	0.2414	0.2414	0.2414	0.2414	M 0
M 1	0.2332	0.2455	0.2465	0.2509	0.2532	0.2483	0.2407	0.2204	0.1759	M 1
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
UUBAR	0.1011	0.0	0.0	0.0	0.0	0.0	0.0	0.1268	0.4694	UUBAR
UFAC	0.033	-0.017	-0.001	-0.039	-0.049	-0.028	0.003	0.086	0.269	UFAC
EFFP	-1.9815	0.9998	1.0003	1.0003	1.0003	0.9992	0.9982	4.0686	153.4724	EFFP
INCIO	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	INCIO
DEVN	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	DEVN
P 0	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	P 0
P 1	14.635	14.694	14.694	14.694	14.694	14.694	14.694	14.620	14.420	P 1
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR C										
PCT SPAN	55.00	90.01	85.00	70.01	50.02	30.02	15.01	10.00	4.98	PCT SPAN
DIA	33.235	33.621	34.000	35.163	36.705	38.247	39.405	39.791	40.178	DIA
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1
BETA 2	52.093	50.752	47.567	44.691	43.609	43.485	45.981	51.177	56.977	BETA 2
BETA(PRI) 1	57.351	56.382	56.608	57.125	58.187	59.893	61.451	63.737	68.681	BETA(PRI) 1
BETA(PRI) 2	20.603	24.422	24.566	25.186	29.219	33.591	38.823	41.575	43.873	BETA(PRI) 2
V 1	271.40	285.16	286.29	291.31	293.47	287.38	278.75	255.53	204.24	V 1
V 2	416.15	404.73	415.32	433.18	420.58	418.18	394.52	381.36	377.31	V 2
VZ 1	271.39	285.16	286.29	291.28	293.33	287.04	278.25	255.01	203.78	VZ 1
VZ 2	255.68	250.66	280.23	307.92	309.87	303.12	273.78	238.78	205.41	VZ 2
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1
V-THETA 2	328.35	313.43	306.53	304.61	295.80	287.50	283.32	296.75	316.02	V-THETA 2
V(PRI) 1	503.1	515.1	520.2	536.6	556.5	572.4	582.5	576.5	560.7	V(PRI) 1
V(PRI) 2	275.3	281.2	308.1	340.3	355.3	364.4	352.0	319.8	285.5	V(PRI) 2
VTHETA PRI	-423.0	-426.9	-434.3	-450.7	-472.9	-495.0	-511.4	-516.8	-522.1	VTHETA PRI
VTHETA PR2	-96.4	-116.3	-128.1	-144.8	-173.3	-201.3	-220.3	-211.8	-197.5	VTHETA PR2
U 1	423.57	428.91	434.30	450.69	472.85	495.04	511.43	516.81	522.15	U 1
U 2	424.77	429.70	434.63	449.41	469.11	488.82	503.62	508.56	513.50	U 2
M 1	0.2446	0.2571	0.2581	0.2627	0.2647	0.2591	0.2513	0.2301	0.1836	M 1
M 2	0.3692	0.3590	0.3689	0.3856	0.3813	0.3719	0.3497	0.3375	0.3336	M 2
M(PRI) 1	0.4433	0.4444	0.4490	0.4440	0.5020	0.5162	0.5250	0.5192	0.5039	M(PRI) 1
M(PRI) 2	0.2424	0.2495	0.2737	0.3029	0.3161	0.3240	0.3120	0.2629	0.2524	M(PRI) 2
TURN(PRI)	36.687	31.960	32.042	31.942	28.976	26.321	22.663	22.205	24.865	TURN(PRI)
UUBAR	0.1771	0.1670	0.1373	0.0755	0.0666	0.0781	0.1377	0.1967	0.1999	UUBAR
LOSS PARA	0.0478	0.0498	0.0370	0.0210	0.0187	0.0219	0.0375	0.0521	0.0516	LOSS PARA
UFAC	0.6555	0.6522	0.6523	0.6541	0.6531	0.6518	0.6644	0.6621	0.6912	UFAC
EFFP	0.8223	0.7742	0.8304	0.8467	0.8613	0.8650	0.8372	0.8023	0.8647	EFFP
INCIO	0.7500	0.7762	0.8274	0.9456	0.9606	0.9642	0.8341	0.7986	0.8619	INCIO
DEVN	0.569	0.4104	0.3915	0.3069	0.2124	0.1834	0.2014	0.3868	0.4041	DEVN
P 1	14.614	15.124	15.046	14.483	14.532	14.727	11.265	13.435	14.989	P 1
P 2	14.635	14.694	14.694	14.694	14.694	14.694	14.694	14.620	14.420	P 2
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
T 2	542.200	542.500	541.800	540.970	541.050	540.870	542.740	543.630	544.210	T 2
STATOR B										
PCT SPAN	55.00	90.12	85.15	70.15	50.00	29.85	14.84	9.88	4.94	PCT SPAN
DIA	33.205	33.950	34.913	36.981	38.420	39.859	41.330	42.885	44.432	DIA
BETA 2	51.618	50.240	47.113	44.418	43.334	43.035	45.375	50.407	55.964	BETA 2
BETA 2A	3.150	3.330	3.903	5.880	5.000	4.901	5.602	5.402	4.432	BETA 2A
V 2	418.94	407.83	418.54	435.67	431.82	422.46	399.49	386.47	382.72	V 2
VZ 2	276.35	282.28	289.79	324.29	340.14	347.75	339.99	322.95	307.37	VZ 2
VZ 2A	260.13	260.86	264.81	311.15	313.96	308.53	280.29	246.04	214.01	VZ 2A
VZ 2A	275.93	281.80	289.11	322.55	344.69	346.19	337.94	321.06	305.97	VZ 2A
V-THETA 2	328.40	313.53	306.68	304.89	298.22	288.05	283.98	297.48	316.85	V-THETA 2
V-THETA 2A	15.14	16.40	19.71	33.22	30.16	29.68	33.15	30.36	23.72	V-THETA 2A
M 2	0.3717	0.3618	0.3718	0.3878	0.3843	0.3758	0.3542	0.3421	0.3385	M 2
M 2A	0.2433	0.2487	0.2556	0.2868	0.3064	0.3079	0.3004	0.2849	0.2708	M 2A
TURN(PRI)	48.467	46.915	43.217	38.532	38.314	38.091	39.710	44.936	51.458	TURN(PRI)
UUBAR	0.1220	0.0731	0.0392	0.0781	0.0244	0.0191	-0.0215	-0.0193	0.0511	UUBAR
LOSS PARA	0.0394	0.0238	0.0303	0.0263	0.0086	0.0070	-0.0081	-0.0073	0.0197	LOSS PARA
UFAC	0.5824	0.5459	0.5337	0.4674	0.4162	0.4022	0.3878	0.4302	0.4947	UFAC
EFFP	0.7941	0.8663	0.8315	0.8343	0.9357	0.9441	1.0742	1.0609	0.8624	EFFP
INCIO	4.646	4.044	1.647	0.742	1.082	0.635	2.001	6.476	11.429	INCIO
DEVN	16.181	16.184	16.634	18.213	17.118	17.605	19.105	19.202	18.577	DEVN
P 2	16.600	16.600	16.605	16.890	16.935	16.925	16.780	16.680	16.675	P 2
P 2A	16.475	16.495	16.545	16.760	16.895	16.895	16.810	16.705	16.610	P 2A
T 2	542.200	542.580	541.880	540.970	541.050	540.870	542.740	543.630	544.210	T 2
T 2A	543.200	542.580	541.880	540.970	541.050	540.870	542.740	543.630	544.210	T 2A
UUBAR FS	0.1292	0.1404	0.1134	0.0568	0.0532	0.0580	0.0563	0.0847	0.1329	UUBAR FS
P2 FS	16.672	16.712	16.725	16.852	16.985	16.990	16.895	16.827	16.795	P2 FS
LOSS PARA FS	0.0417	0.0457	0.0379	0.0191	0.0187	0.0212	0.0212	0.0320	0.0512	LOSS PARA FS

Table A-3. Blade Element Performance (Continued)

Stage C Rotor C - Stator B											
CALCULATIONS USING TRANSLATED VALUES											
PERCENT EQUIVALENT ROTOR SPEED = 69.46 EQUIVALENT ROTOR SPEED = 2924.35 EQUIVALENT WEIGHT FLOW = 63.33											
INLET	PCT SPAN	96.61	91.52	86.39	70.81	49.79	28.83	13.41	8.35	3.34	PCT SPAN
	DIA	33.138	33.570	34.006	35.328	37.113	38.892	40.202	40.631	41.056	DIA
	BETA 0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 0
	BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1
	V 0	247.14	247.14	247.14	247.14	247.14	247.14	247.14	247.14	247.14	V 0
	V 1	236.80	257.08	257.08	257.56	261.39	255.64	246.76	228.91	176.81	V 1
	VZ 0	247.14	247.14	247.14	247.13	247.12	247.09	247.07	247.06	247.05	VZ 0
	VZ 1	236.80	257.07	257.07	257.56	261.37	255.59	246.69	228.84	176.74	VZ 1
	V-THETA 0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 0
	V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1
	M 0	0.2225	0.2225	0.2225	0.2225	0.2225	0.2225	0.2225	0.2225	0.2225	M 0
	M 1	0.2131	0.2315	0.2315	0.2319	0.2354	0.2302	0.2221	0.2059	0.1588	M 1
	TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN
	UUBAR	0.1687	0.0	0.0	0.0	0.0	0.0	0.0	0.1386	0.4901	UUBAR
	DFAC	0.042	-0.040	-0.040	-0.042	-0.058	-0.034	0.002	0.074	0.285	DFAC
	EFFP	-0.9801	0.9997	0.9997	0.9988	1.0003	0.9993	1.0053	23.2522	134.0085	EFFP
	INCID	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	INCID
	DEVM	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	DEVM
	P 0	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	P 0
	P 1	14.610	14.694	14.694	14.694	14.694	14.694	14.694	14.625	14.450	P 1
	T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0
	T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
ROTOR C ROTOR -L.E. ROTOR -T.E.	PCT SPAN	95.00	90.01	85.00	70.01	50.02	30.02	15.01	10.00	4.98	PCT SPAN
	DIA	33.235	33.621	34.006	35.163	36.705	38.247	39.405	39.791	40.178	DIA
	BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1
	BETA 2	54.319	53.477	51.270	47.302	46.204	46.710	53.768	58.799	62.919	BETA 2
	BETA(PR) 1	59.605	57.867	58.189	59.086	59.973	61.689	63.291	65.210	70.561	BETA(PR) 1
	BETA(PR) 2	19.847	24.759	24.888	25.312	28.929	32.423	41.362	41.528	40.307	BETA(PR) 2
	V 1	248.06	268.96	268.96	269.47	272.99	266.55	257.37	238.79	184.40	V 1
	V 2	414.62	397.92	405.40	425.06	424.28	419.83	379.26	386.69	401.90	V 2
	VZ 1	248.05	268.95	268.96	269.44	272.85	266.24	256.90	238.30	183.98	VZ 1
	VZ 2	241.84	236.82	253.64	288.22	293.52	287.62	223.95	200.15	182.83	VZ 2
	V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1
	V-THETA 2	336.79	319.78	316.25	312.36	306.12	305.33	305.63	330.48	357.57	V-THETA 2
	V(PR) 1	490.3	505.7	510.2	524.5	545.3	561.5	571.8	568.5	552.9	V(PR) 1
	V(PR) 2	257.1	260.8	279.6	318.9	335.6	341.2	298.9	267.8	240.2	V(PR) 2
	VTHETA PR1	-422.9	-428.2	-433.6	-450.0	-472.1	-494.2	-510.6	-516.0	-521.3	VTHETA PR1
	VTHETA PR2	-87.3	-109.2	-117.7	-136.3	-162.2	-182.7	-197.2	-177.2	-155.1	VTHETA PR2
	U 1	422.87	428.21	433.59	449.95	472.08	494.23	510.59	515.97	521.30	U 1
	U 2	424.08	429.00	433.92	448.68	468.35	488.02	502.80	507.73	512.66	U 2
	M 1	0.2233	0.2423	0.2423	0.2428	0.2460	0.2401	0.2318	0.2149	0.1656	M 1
	M 2	0.3677	0.3528	0.3598	0.3781	0.3773	0.3731	0.3356	0.3421	0.3557	M 2
	M(PR) 1	0.4413	0.4556	0.4597	0.4726	0.4914	0.5059	0.5149	0.5116	0.4967	M(PR) 1
	M(PR) 2	0.2280	0.2312	0.2482	0.2836	0.2984	0.3032	0.2644	0.2369	0.2126	M(PR) 2
	TURN(PR)	39.757	33.108	33.302	33.776	31.053	29.286	21.966	23.728	30.312	TURN(PR)
	UUBAR	0.1425	0.1805	0.1544	0.0828	0.0729	0.0974	0.2168	0.2616	0.2648	UUBAR
	LOSS PARA	0.0387	0.0479	0.0415	0.0230	0.0206	0.0277	0.0569	0.0693	0.0724	LOSS PARA
	DFAC	0.6742	0.6694	0.6357	0.5749	0.5647	0.5746	0.6627	0.7330	0.7953	DFAC
	EFFP	0.8530	0.8009	0.8438	0.9612	0.9910	0.9768	0.8038	0.8332	0.9218	EFFP
	EFF	0.8501	0.7972	0.8409	0.9604	0.9806	0.9763	0.8001	0.8298	0.9200	EFF
	INCID	7.753	5.589	5.499	5.030	3.911	3.631	3.855	5.344	9.924	INCID
	DEVM	12.098	15.461	13.968	9.609	8.242	7.559	13.804	13.388	11.424	DEVM
	P 1	14.610	14.694	14.694	14.694	14.694	14.694	14.694	14.625	14.450	P 1
	P 2	16.785	16.675	16.730	16.940	17.010	17.035	16.765	16.820	16.930	P 2
	T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1
	T 2	543.380	542.640	542.000	541.100	541.290	541.620	543.590	544.180	544.800	T 2
STATOR B STATOR-L.E. STATOR-T.E.	PCT SPAN	95.05	90.12	85.15	70.15	50.00	29.85	14.84	9.88	4.94	PCT SPAN
	DIA	33.203	33.556	33.910	34.981	36.420	37.859	38.930	39.285	39.637	DIA
	BETA 2	53.805	52.921	50.762	47.005	45.840	46.207	52.987	57.783	61.619	BETA 2
	BETA 2A	2.610	2.790	3.910	5.590	5.470	5.021	5.062	4.262	2.962	BETA 2A
	V 2	417.40	400.95	408.52	427.50	427.48	424.14	383.99	391.89	407.77	V 2
	V 2A	268.88	268.78	270.64	302.79	324.20	328.71	310.79	296.60	287.32	V 2A
	VZ 2	246.49	241.74	258.40	291.49	297.70	293.30	230.96	208.77	193.69	VZ 2
	VZ 2A	268.60	268.46	270.00	301.32	322.60	327.18	309.20	295.36	286.48	VZ 2A
	V-THETA 2	336.85	319.88	316.41	312.64	306.55	305.92	306.34	331.30	358.51	V-THETA 2
	V-THETA 2A	12.24	13.08	18.45	29.49	30.89	28.74	27.39	22.01	14.82	V-THETA 2A
	M 2	0.3703	0.3556	0.3627	0.3803	0.3802	0.3770	0.3398	0.3468	0.3610	M 2
	M 2A	0.2366	0.2367	0.2385	0.2674	0.2866	0.2906	0.2740	0.2611	0.2527	M 2A
	TURN(PR)	51.195	50.131	46.852	41.409	40.350	41.144	47.864	53.457	58.589	TURN(PR)
	UUBAR	0.1154	0.0538	0.0791	0.0839	0.0310	0.0502	-0.0466	0.0633	0.1680	UUBAR
	LOSS PARA	0.0373	0.0175	0.0260	0.0283	0.0109	0.0183	-0.0175	0.0241	0.0648	LOSS PARA
	DFAC	0.6076	0.5796	0.5780	0.5166	0.4696	0.4657	0.4669	0.5466	0.6230	DFAC
	EFFP	0.8119	0.9069	0.8655	0.8403	0.9311	0.8810	1.1287	0.8584	0.6807	EFFP
	INCID	6.834	6.720	5.292	3.330	3.588	3.807	9.616	13.859	17.092	INCID
	DEVM	15.641	15.644	16.644	17.924	17.588	17.725	18.566	18.064	17.109	DEVM
	P 2	16.785	16.675	16.730	16.940	17.010	17.035	16.765	16.820	16.930	P 2
	P 2A	16.610	16.600	16.615	16.805	16.960	16.955	16.825	16.735	16.685	P 2A
	T 2	543.380	542.640	542.000	541.100	541.290	541.620	543.590	544.180	544.800	T 2
	T 2A	543.380	542.640	542.000	541.100	541.290	541.620	543.590	544.180	544.800	T 2A
	UUBAR FS	0.1254	0.1413	0.1228	0.0530	0.0398	0.0427	0.0674	0.0904	0.1149	UUBAR FS
	P2 FS	16.802	16.817	16.802	16.887	17.025	17.022	16.922	16.860	16.842	P2 FS
LOSS PARA FS	0.0405	0.0459	0.0403	0.0178	0.0139	0.0155	0.0253	0.0344	0.0443	LOSS PARA FS	

Table A-3. Blade Element Performance (Continued)

Stage C Rotor C - Stator B CALCULATIONS USING TRANSLATED VALUES PERCENT EQUIVALENT ROTOR SPEED = 49.12 EQUIVALENT ROTOR SPEED = 2067.85 EQUIVALENT WEIGHT FLOW = 68.43											
INLET											
PCT SPAN	96.01	91.52	86.39	70.61	49.79	28.83	13.41	8.35	3.34	PCT SPAN	
DIA	33.138	33.576	34.506	35.328	37.113	38.892	40.262	40.631	41.056	DIA	
BETA 0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 0	
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1	
V 0	268.15	268.15	268.15	268.15	268.15	268.15	268.15	268.15	268.15	V 0	
V 1	270.81	271.62	272.27	272.56	275.83	271.64	263.74	247.18	218.39	V 1	
VZ 0	268.14	268.15	268.15	268.14	268.12	268.10	268.07	268.06	268.05	VZ 0	
VZ 1	271.61	271.62	272.26	272.56	275.80	271.59	263.67	247.11	218.31	VZ 1	
V-THETA 0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 0	
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1	
M 0	0.2416	0.2416	0.2416	0.2416	0.2416	0.2416	0.2416	0.2416	0.2416	M 0	
M 1	0.2446	0.2446	0.2453	0.2456	0.2466	0.2448	0.2376	0.2225	0.1964	M 1	
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN	
UUBAR	0.0103	0.0	0.0	0.0	0.0	0.0	0.0065	0.1111	0.3488	UUBAR	
DFAC	-0.010	-0.015	-0.015	-0.016	-0.029	-0.013	0.016	0.078	0.186	DFAC	
EFFP	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	EFFP	
INCID	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	INCID	
DEVM	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	DEVM	
P 0	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	P 0	
P 1	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	P 1	
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0	
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1	
ROTOR C											
PCT SPAN	95.00	90.01	85.00	70.01	50.00	30.02	15.01	10.00	4.98	PCT SPAN	
DIA	33.235	33.821	34.506	35.163	36.705	38.247	39.405	39.791	40.178	DIA	
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1	
BETA 2	34.101	31.239	29.685	29.325	28.084	26.645	26.677	26.766	27.613	BETA 2	
BETA(PRI) 1	46.486	46.308	47.097	48.124	49.213	51.001	52.796	54.796	58.331	BETA(PRI) 1	
BETA(PRI) 2	24.577	23.268	23.794	23.739	24.294	24.995	25.019	26.827	27.175	BETA(PRI) 2	
V 1	283.90	284.26	284.94	285.26	288.15	283.32	275.18	257.94	227.91	V 1	
V 2	319.23	342.28	349.36	348.67	343.10	328.76	311.45	321.84	256.08	V 2	
VZ 1	283.89	284.26	284.94	285.23	288.00	282.99	274.68	257.41	227.39	VZ 1	
VZ 2	264.34	292.66	303.50	303.44	302.57	293.41	295.51	286.78	226.28	VZ 2	
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1	
V-THETA 2	177.51	177.51	173.51	170.74	161.44	147.22	148.48	144.27	118.36	V-THETA 2	
V(PRI) 1	412.3	415.3	418.6	427.3	441.0	449.9	454.0	446.8	433.4	V(PRI) 1	
V(PRI) 2	290.7	310.6	331.7	337.5	347.2	354.4	361.5	359.0	333.4	V(PRI) 2	
VTHETA PRI	-259.0	-302.8	-306.6	-318.2	-333.8	-349.5	-361.0	-364.8	-368.6	VTHETA PRI	
VTHETA PR2	-120.0	-125.8	-133.3	-146.5	-169.7	-197.9	-207.1	-214.7	-244.1	VTHETA PR2	
U 1	259.02	302.79	306.63	318.17	333.82	349.48	361.05	364.85	368.62	U 1	
U 2	259.87	303.35	306.83	317.27	331.18	345.09	355.54	359.02	362.51	U 2	
M 1	0.2560	0.2563	0.2569	0.2572	0.2598	0.2554	0.2480	0.2323	0.2050	M 1	
M 2	0.2850	0.3064	0.3131	0.3130	0.3080	0.2954	0.2885	0.2885	0.2288	M 2	
M(PRI) 1	0.3718	0.3745	0.3774	0.3833	0.3977	0.4056	0.4091	0.4024	0.3898	M(PRI) 1	
M(PRI) 2	0.2595	0.2851	0.2973	0.3030	0.3116	0.3179	0.3243	0.3218	0.2979	M(PRI) 2	
TURN(PRI)	21.908	23.540	23.303	22.388	19.929	17.022	17.743	18.001	11.198	TURN(PRI)	
UUBAR	0.2092	0.1200	0.0709	0.0644	0.0580	0.0590	0.0486	0.0395	0.0740	UUBAR	
LOSS PARA	0.0549	0.0523	0.0191	0.0178	0.0163	0.0165	0.0140	0.0112	0.0180	LOSS PARA	
DFAC	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	DFAC	
EFFP	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	EFFP	
INCID	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	INCID	
DEVM	10.328	15.970	12.874	10.336	8.604	9.130	7.405	8.690	18.291	DEVM	
P 1	14.694	14.694	14.694	14.694	14.694	14.694	14.682	14.629	14.490	P 1	
P 2	15.295	15.429	15.480	15.510	15.502	15.451	15.488	15.433	15.089	P 2	
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1	
T 2	530.750	529.280	529.300	526.420	526.410	526.440	526.440	526.680	526.730	T 2	
STATOR B											
PCT SPAN	95.00	90.12	85.19	70.15	50.00	29.85	14.84	9.88	4.94	PCT SPAN	
DIA	33.203	33.556	33.913	34.981	36.420	37.859	38.930	39.637	39.637	DIA	
BETA 2	33.064	30.997	29.401	29.180	27.907	26.420	26.391	26.400	27.283	BETA 2	
BETA 2A	5.346	6.200	5.560	7.260	7.371	7.322	7.473	7.003	6.503	BETA 2A	
V 2	321.24	344.80	351.95	350.57	345.03	331.94	335.46	326.00	259.52	V 2	
V 2A	322.73	343.50	349.65	362.56	365.59	368.50	363.03	356.60	333.03	V 2A	
VZ 2	266.75	295.56	306.45	306.03	305.25	296.88	299.91	291.36	230.10	VZ 2	
VZ 2A	321.05	341.49	347.35	359.61	362.45	365.20	359.50	353.45	330.37	VZ 2A	
V-THETA 2	177.01	177.57	173.57	170.89	161.07	147.50	148.82	144.63	118.68	V-THETA 2	
V-THETA 2A	32.83	37.16	40.06	45.81	46.88	46.92	47.16	43.42	37.66	V-THETA 2A	
M 2	0.2868	0.3086	0.3155	0.3148	0.3103	0.2979	0.3010	0.2923	0.2319	M 2	
M 2A	0.2861	0.3075	0.3134	0.3258	0.3286	0.3314	0.3262	0.3202	0.2987	M 2A	
TURN(PRI)	28.025	24.797	22.880	21.915	20.521	19.067	18.872	19.344	20.719	TURN(PRI)	
UUBAR	0.1376	0.1436	0.1628	0.1127	0.0917	0.0607	0.0454	0.1396	-0.1082	UUBAR	
LOSS PARA	0.0444	0.0464	0.0532	0.0379	0.0321	0.0221	0.0358	0.0530	-0.0415	LOSS PARA	
DFAC	0.1427	0.1369	0.1312	0.0871	0.0699	0.0018	0.0335	0.0259	-0.1614	DFAC	
EFFP	15.3447	-17.3372	-11.0578	2.5553	1.7422	1.2509	1.5362	1.6853	0.8376	EFFP	
INCID	-13.107	-13.204	-10.013	-14.494	-14.341	-15.470	-16.968	-17.517	-17.242	INCID	
DEVM	18.871	19.054	19.314	19.593	19.488	20.024	20.973	20.801	20.645	DEVM	
P 2	15.295	15.429	15.480	15.510	15.502	15.451	15.488	15.433	15.089	P 2	
P 2A	15.178	15.288	15.318	15.394	15.410	15.395	15.398	15.309	15.149	P 2A	
T 2	530.750	529.280	529.300	526.420	526.410	526.030	526.440	526.680	526.730	T 2	
T 2A	530.750	529.280	529.300	526.420	526.410	526.030	526.440	526.680	526.730	T 2A	
UUBAR FS	0.1891	0.1543	0.1817	0.1595	0.1375	0.1475	0.1272	0.1217	0.2151	UUBAR FS	
P2 FS	15.360	15.442	15.510	15.567	15.555	15.545	15.522	15.415	15.317	P2 FS	
LOSS PARA FS	0.0641	0.0501	0.0593	0.0536	0.0480	0.0337	0.0477	0.0462	0.0825	LOSS PARA FS	

Table A-3. Blade Element Performance (Continued)

Stage C Rotor C - Stator B CALCULATIONS USING TRANSLATED VALUES PERCENT EQUIVALENT ROTOR SPEED = 49.37 EQUIVALENT ROTOR SPEED = 2078.54 EQUIVALENT WEIGHT FLOW = 64.69												
INLET												
PCT SPAN	96.61	91.52	86.39	70.81	49.79	28.83	13.41	8.35	3.34		PCT SPAN	
DIA	33.138	33.570	34.006	35.328	37.113	38.892	40.202	40.631	41.056		DIA	
BETA 0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		BETA 0	
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		BETA 1	
V 0	252.72	252.72	252.72	252.72	252.72	252.72	252.72	252.72	252.72		V 0	
V 1	243.66	236.46	258.86	259.58	259.35	256.76	252.57	243.09	186.68		V 1	
VZ 0	252.72	252.72	252.72	252.71	252.70	252.67	252.65	252.64	252.63		VZ 0	
VZ 1	243.66	236.46	258.86	259.58	259.33	256.71	252.50	243.01	186.62		VZ 1	
V-THETA 0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		V-THETA 0	
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		V-THETA 1	
M 0	0.2275	0.2275	0.2275	0.2275	0.2275	0.2275	0.2275	0.2275	0.2275		M 0	
M 1	0.2193	0.2309	0.2331	0.2338	0.2336	0.2312	0.2274	0.2188	0.1677		M 1	
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		TURN	
UUBAR	0.1211	0.0135	-0.0038	-0.0038	-0.0038	-0.0038	-0.0038	0.0577	0.4516		UUBAR	
DFAC	0.036	-0.015	-0.024	-0.027	-0.026	-0.016	0.001	0.038	0.261		DFAC	
EFFP	-1.4570	0.6936	1.0822	1.0718	1.0762	1.1305	0.2325	4.0792	54.2673		EFFP	
INCLD	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001		INCLD	
DEVM	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000		DEVM	
P 0	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694		P 0	
P 1	14.631	14.687	14.694	14.694	14.694	14.694	14.694	14.664	14.459		P 1	
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700		T 0	
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700		T 1	
ROTOR C												
PCT SPAN	95.00	90.01	85.00	70.01	50.02	30.02	15.01	10.00	4.98		PCT SPAN	
DIA	33.235	33.621	34.006	35.163	36.705	38.247	39.405	39.791	40.178		DIA	
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		BETA 1	
BETA 2	36.882	34.624	33.187	31.932	30.838	29.789	29.406	30.118	31.080		BETA 2	
BETA(PRI) 1	49.658	48.602	48.691	49.664	51.104	52.721	54.071	55.386	62.330		BETA(PRI) 1	
BETA(PRI) 2	22.454	22.478	22.913	26.228	30.032	33.148	36.152	38.471	46.463		BETA(PRI) 2	
V 1	255.29	268.31	270.83	271.59	270.84	267.72	263.46	253.65	194.73		V 1	
V 2	323.85	335.56	342.27	336.80	330.14	326.59	317.65	304.20	257.72		V 2	
VZ 1	255.28	268.31	270.83	271.57	270.70	267.41	262.98	253.13	194.28		VZ 1	
VZ 2	259.04	276.13	286.44	285.79	283.28	283.04	276.14	262.51	220.15		VZ 2	
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		V-THETA 1	
V-THETA 2	194.37	190.66	187.34	178.11	169.12	162.02	155.63	152.28	132.70		V-THETA 2	
VIPRI 1	394.3	405.7	410.3	419.6	431.2	441.7	448.5	445.9	418.6		VIPRI 1	
VIPRI 2	280.3	298.8	311.0	318.6	327.4	338.5	342.6	335.9	320.1		VIPRI 2	
VTHETA PR1	-300.6	-304.4	-308.2	-319.8	-335.5	-351.3	-362.9	-366.7	-370.5		VTHETA PR1	
VTHETA PR2	-107.1	-114.3	-121.1	-140.8	-163.8	-186.8	-201.7	-208.6	-231.7		VTHETA PR2	
U 1	300.57	304.36	308.18	319.81	335.54	351.28	362.91	366.73	370.52		U 1	
U 2	301.42	304.92	308.42	318.91	332.89	346.87	357.38	360.88	364.39		U 2	
M 1	0.2299	0.2417	0.2440	0.2447	0.2440	0.2412	0.2373	0.2284	0.1750		M 1	
M 2	0.2895	0.3003	0.3067	0.3019	0.2958	0.2926	0.2844	0.2722	0.2301		M 2	
M(PRI) 1	0.3551	0.3656	0.3697	0.3781	0.3885	0.3979	0.4040	0.4015	0.3761		M(PRI) 1	
M(PRI) 2	0.2505	0.2674	0.2787	0.2856	0.2933	0.3033	0.3068	0.3006	0.2858		M(PRI) 2	
TURN(PRI)	27.203	26.123	25.778	23.438	21.080	19.589	17.946	16.948	15.914		TURN(PRI)	
UUBAR	0.1352	0.1038	0.0667	0.0560	0.0559	0.0456	0.0628	0.0799	0.0241		UUBAR	
LOSS PARA	0.0361	0.0281	0.0182	0.0154	0.0156	0.0129	0.0177	0.0221	0.0059		LOSS PARA	
DFAC	0.4317	0.4011	0.3774	0.3709	0.3665	0.3565	0.3466	0.3365	0.3278		DFAC	
EFFP	0.7327	0.8009	0.9263	0.9889	0.9616	1.0015	0.9460	0.8915	0.8575		EFFP	
EFF	0.7307	0.7993	0.9257	0.9888	0.9613	1.0015	0.9456	0.8907	0.8565		EFF	
INCLD	-2.184	-3.676	-3.999	-4.393	-4.959	-5.342	-5.372	-4.991	-1.680		INCLD	
DEVM	14.705	13.180	11.994	10.525	9.345	8.284	8.597	10.333	17.579		DEVM	
P 1	14.631	14.687	14.694	14.694	14.694	14.694	14.694	14.664	14.459		P 1	
P 2	15.440	15.525	15.578	15.573	15.560	15.571	15.530	15.458	15.226		P 2	
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700		T 1	
T 2	529.700	529.070	528.110	527.460	527.580	527.330	527.420	527.540	527.710		T 2	
STATOR B												
PCT SPAN	95.05	90.12	85.15	70.15	50.00	29.85	14.84	9.88	4.94		PCT SPAN	
DIA	33.203	33.556	33.910	34.981	36.420	37.859	38.930	39.285	39.637		DIA	
BETA 2	36.620	34.350	32.931	31.773	30.644	29.534	29.089	29.769	30.700		BETA 2	
BETA 2A	4.680	4.930	5.330	6.100	5.840	6.381	6.522	5.992	5.213		BETA 2A	
V 2	325.90	338.02	344.79	338.62	332.47	329.73	321.46	308.10	261.19		V 2	
V 2A	293.73	309.18	317.29	335.19	336.74	337.87	339.48	324.10	300.70		V 2A	
VZ 2	261.57	279.07	289.39	287.83	285.88	286.54	280.39	266.89	224.07		VZ 2	
VZ 2A	292.75	308.04	315.91	333.25	334.86	335.50	336.87	321.88	298.99		VZ 2A	
V-THETA 2	194.40	190.73	187.43	178.27	169.37	162.34	155.99	152.66	133.05		V-THETA 2	
V-THETA 2A	23.97	26.57	29.47	35.61	34.25	37.52	38.51	33.79	27.28		V-THETA 2A	
M 2	0.2913	0.3025	0.3090	0.3035	0.2979	0.2955	0.2879	0.2757	0.2332		M 2	
M 2A	0.2621	0.2763	0.2839	0.3004	0.3018	0.3029	0.3043	0.2903	0.2690		M 2A	
TURN(PRI)	31.940	29.420	27.600	25.668	24.787	23.118	22.316	23.718	25.419		TURN(PRI)	
UUBAR	0.1540	0.1414	0.1463	0.0919	0.0463	0.0710	0.0415	0.0692	-0.0866		UUBAR	
LOSS PARA	0.0497	0.0460	0.0480	0.0175	0.0162	0.0259	0.0156	0.0263	-0.0333		LOSS PARA	
DFAC	0.2680	0.2440	0.2309	0.1533	0.1309	0.1150	0.0832	0.0967	0.0065		DFAC	
EFFP	0.2051	0.1642	0.0787	-1.4774	2.7205	2.3682	1.3488	1.6275	0.7410		EFFP	
INCLD	-10.351	-11.851	-12.540	-11.902	-11.605	-12.859	-14.274	-14.152	-13.830		INCLD	
DEVM	17.711	17.784	18.064	18.433	17.958	19.084	20.274	19.792	19.357		DEVM	
P 2	15.440	15.525	15.578	15.573	15.560	15.571	15.530	15.458	15.226		P 2	
P 2A	15.304	15.390	15.432	15.523	15.517	15.506	15.494	15.403	15.275		P 2A	
T 2	529.700	529.070	528.110	527.460	527.580	527.330	527.420	527.540	527.710		T 2	
T 2A	529.700	529.070	528.110	527.460	527.580	527.330	527.420	527.540	527.710		T 2A	
UUBAR FS	0.1840	0.1276	0.1171	0.0870	0.0761	0.0898	0.0936	0.1105	0.1827		UUBAR FS	
P2 FS	15.472	15.510	15.545	15.620	15.590	15.580	15.580	15.495	15.412		P2 FS	
LOSS PARA FS	0.0582	0.0415	0.0384	0.0293	0.0266	0.0327	0.0351	0.0419	0.0702		LOSS PARA FS	

Table A-3. Blade Element Performance (Continued)

Stage C Rotor C - Stator B CALCULATIONS USING TRANSLATED VALUES PERCENT EQUIVALENT ROTOR SPEED = 49.83 EQUIVALENT ROTOR SPEED = 2097.88 EQUIVALENT WEIGHT FLOW = 59.70											
INLET											
PCT SPAN	56.61	91.52	86.39	70.81	49.79	28.83	13.41	8.35	3.34		PCT SPAN
DIA	33.138	33.570	34.006	35.328	37.113	38.892	40.202	40.631	41.056		DIA
BETA 0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		BETA 0
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		BETA 1
V 0	232.34	232.34	232.34	232.34	232.34	232.34	232.34	232.34	232.34		V 0
V 1	234.25	238.56	240.98	241.19	239.90	238.60	238.96	228.98	181.86		V 1
VZ 0	232.34	232.34	232.34	232.34	232.32	232.30	232.28	232.27	232.26		VZ 0
VZ 1	234.25	238.56	240.98	241.19	239.86	238.55	232.90	228.91	181.79		VZ 1
V-THETA 0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		V-THETA 0
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		V-THETA 1
M 0	0.2090	0.2090	0.2090	0.2090	0.2090	0.2090	0.2090	0.2090	0.2090		M 0
M 1	0.2168	0.2147	0.2169	0.2171	0.2159	0.2147	0.2096	0.2060	0.1633		M 1
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		TURN
UUBAR	0.0318	0.0	0.0	0.0	0.0	0.0	0.0	0.0318	0.3903		UUBAR
DFAC	-0.006	-0.027	-0.037	-0.038	-0.033	-0.027	-0.003	0.014	0.217		DFAC
EFFP	0.3454	0.9986	0.9992	0.9992	0.9986	0.9995	0.9914	-11.6455	227.5412		EFFP
INCID	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001		INCID
DEVN	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000		DEVN
P 0	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694		P 0
P 1	14.680	14.694	14.694	14.694	14.694	14.694	14.694	14.680	14.522		P 1
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700		T 0
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700		T 1
ROTOR C											
PCT SPAN	55.00	90.01	85.00	70.01	50.02	30.02	15.01	10.00	4.98		PCT SPAN
DIA	33.235	33.621	34.006	35.163	36.705	38.247	39.465	39.791	40.178		DIA
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		BETA 1
BETA 2	41.505	39.446	36.718	36.025	35.059	34.169	34.064	35.195	37.128		BETA 2
BETA(PK) 1	51.032	50.917	50.984	51.995	53.531	54.983	56.496	57.219	63.158		BETA(PK) 1
BETA(PK) 2	24.624	23.479	23.510	25.473	29.755	33.677	27.782	29.961	34.961		BETA(PK) 2
V 1	245.38	249.49	252.03	252.26	250.43	248.70	242.92	238.86	189.68		V 1
V 2	302.43	317.02	328.35	336.71	322.52	314.97	302.64	348.48	317.47		V 2
VZ 1	245.37	249.49	252.03	252.23	250.31	248.41	242.48	238.37	189.25		VZ 1
VZ 2	226.49	244.81	263.60	267.43	263.85	260.27	299.84	284.18	252.55		VZ 2
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		V-THETA 1
V-THETA 2	200.42	201.42	196.61	194.47	185.15	176.67	202.73	200.42	191.19		V-THETA 2
V(PK) 1	396.2	395.7	400.3	404.7	421.2	433.1	439.5	440.5	419.3		V(PK) 1
V(PK) 2	245.1	266.9	267.5	296.3	304.1	313.2	339.7	328.8	308.9		V(PK) 2
VTHETA PK1	-303.4	-307.2	-311.1	-322.8	-338.7	-354.6	-366.3	-370.1	-374.0		VTHETA PK1
VTHETA PK2	-163.6	-166.3	-114.7	-127.4	-150.8	-173.4	-158.0	-163.8	-176.6		VTHETA PK2
U 1	303.36	307.19	311.05	322.79	338.66	354.55	366.29	370.15	373.97		U 1
U 2	304.23	307.76	311.29	321.87	335.98	350.10	360.70	364.23	367.78		U 2
M 1	0.2209	0.2246	0.2269	0.2271	0.2255	0.2239	0.2186	0.2149	0.1704		M 1
M 2	0.2698	0.2832	0.2941	0.2960	0.2884	0.2817	0.3250	0.3119	0.2836		M 2
M(PK) 1	0.3512	0.3563	0.3604	0.3688	0.3792	0.3899	0.3956	0.3964	0.3767		M(PK) 1
M(PK) 2	0.2223	0.2384	0.2571	0.2652	0.2720	0.2800	0.3044	0.2943	0.2760		M(PK) 2
TURN(PK)	26.406	27.439	27.473	26.525	23.785	21.324	28.732	27.282	28.239		TURN(PK)
UUBAR	0.1733	0.1319	0.0674	0.0598	0.0596	0.0686	0.1894	0.2331	0.2313		UUBAR
LOSS PARA	0.0455	0.0354	0.0183	0.0166	0.0167	0.0192	0.0586	0.0715	0.0679		LOSS PARA
DFAC	0.0100	0.0746	0.4275	0.4226	0.4190	0.4136	0.3872	0.4134	0.4254		DFAC
EFFP	0.6759	0.7700	0.8776	0.9680	0.9207	0.9250	0.8811	0.7876	0.7629		EFFP
EFF	0.6710	0.7682	0.8767	0.9677	0.9200	0.9244	0.8800	0.7858	0.7610		EFF
INCID	-0.010	-1.361	-1.706	-2.062	-2.532	-3.078	-2.946	-2.657	2.509		INCID
DEVN	16.875	14.181	14.591	9.770	9.067	8.812	0.237	1.833	6.083		DEVN
P 1	14.680	14.694	14.694	14.694	14.694	14.694	14.694	14.680	14.522		P 1
P 2	15.427	15.508	15.638	15.669	15.658	15.633	15.628	15.538	15.362		P 2
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700		T 1
T 2	530.610	529.940	529.320	528.630	529.030	528.720	529.170	529.500	529.740		T 2
STATOR B											
PCT SPAN	55.05	90.12	85.15	70.15	50.00	29.85	14.84	9.88	4.94		PCT SPAN
DIA	33.203	33.556	33.913	34.981	36.420	37.859	38.930	39.285	39.637		DIA
BETA 2	41.195	39.124	36.429	35.840	34.833	33.869	33.673	34.760	36.637		BETA 2
BETA 2A	3.820	4.100	5.080	5.460	4.601	4.971	5.522	5.543	5.123		BETA 2A
V 2	304.32	319.31	331.26	332.49	324.79	317.98	367.12	353.06	321.87		V 2
V 2A	256.93	276.21	281.25	302.40	305.80	309.13	305.01	292.95	274.90		V 2A
VZ 2	226.98	247.72	266.53	269.50	266.46	263.73	305.01	289.52	257.77		VZ 2
VZ 2A	256.36	275.51	280.14	300.99	304.69	307.71	303.21	291.18	273.38		VZ 2A
V-THETA 2	200.45	201.49	196.71	194.65	185.42	177.01	203.21	200.92	191.70		V-THETA 2
V-THETA 2A	17.12	19.75	24.90	28.77	24.52	26.77	29.31	28.26	24.51		V-THETA 2A
M 2	0.2715	0.2853	0.2963	0.2976	0.2905	0.2844	0.3291	0.3161	0.2876		M 2
M 2A	0.2287	0.2463	0.2510	0.2703	0.2732	0.2764	0.2725	0.2615	0.2451		M 2A
TURN(PK)	37.379	35.024	31.348	30.374	30.213	28.859	28.093	29.152	31.439		TURN(PK)
UUBAR	0.1112	0.0912	0.1331	0.0332	0.0135	-0.0047	0.0151	0.0077	-0.0851		UUBAR
LOSS PARA	0.0359	0.0297	0.0437	0.0112	0.0047	-0.0017	0.0057	0.0029	-0.0328		LOSS PARA
DFAC	0.3568	0.3209	0.3220	0.2599	0.2337	0.2020	0.3495	0.3584	0.3480		DFAC
EFFP	0.6236	0.6490	0.5385	0.8150	0.8855	1.0832	0.9535	0.9763	1.3034		EFFP
INCID	-5.772	-7.077	-9.042	-7.835	-7.418	-8.527	-9.695	-9.167	-7.900		INCID
DEVN	16.851	16.954	17.814	17.794	16.719	17.675	19.025	19.343	19.267		DEVN
P 2	15.487	15.568	15.638	15.669	15.658	15.633	15.628	15.538	15.362		P 2
P 2A	15.401	15.490	15.515	15.638	15.646	15.637	15.611	15.530	15.435		P 2A
T 2	530.610	529.940	529.320	528.630	529.030	528.720	529.170	529.500	529.740		T 2
T 2A	530.610	529.940	529.320	528.630	529.030	528.720	529.170	529.500	529.740		T 2A
UUBAR FS	0.1614	0.1111	0.1134	0.0803	0.0552	0.0581	0.0770	0.0865	0.1623		UUBAR FS
P2 FS	15.555	15.600	15.627	15.720	15.700	15.695	15.682	15.604	15.560		P2 FS
LOSS PARA FS	0.0921	0.0961	0.0972	0.0270	0.0192	0.0213	0.0220	0.0223	0.0626		LOSS PARA FS

Table A-3. Blade Element Performance (Continued)

Stage C Rotor C - Stator B CALCULATIONS USING TRANSLATED VALUES PERCENT EQUIVALENT ROTOR SPEED = 49.82 EQUIVALENT ROTOR SPEED = 2097.38 EQUIVALENT WEIGHT FLOW = 55.83											
INLET											
PCT SPAN	96.61	91.52	86.39	70.81	49.79	28.83	13.41	8.35	3.34		PCT SPAN
DIA	33.138	33.570	34.006	35.328	37.113	38.892	40.202	40.631	41.056		DIA
BETA 0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		BETA 0
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		BETA 1
V 0	216.71	216.71	216.71	216.71	216.71	216.71	216.71	216.71	216.71		V 0
V 1	218.73	225.57	225.57	226.76	225.35	222.41	216.73	210.36	175.80		V 1
VZ 0	216.70	216.70	216.70	216.70	216.69	216.67	216.65	216.64	216.63		VZ 0
VZ 1	218.73	225.57	225.57	226.76	225.33	222.37	216.67	210.30	175.73		VZ 1
V-THETA 0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		V-THETA 0
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		V-THETA 1
M 0	0.1948	0.1948	0.1948	0.1948	0.1948	0.1948	0.1948	0.1948	0.1948		M 0
M 1	0.1967	0.2029	0.2029	0.2040	0.2027	0.2000	0.1949	0.1891	0.1579		M 1
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		TURN
UUBAR	0.0651	0.0	0.0	0.0	0.0	0.0	0.0	0.0599	0.3438		UUBAR
DFAC	-0.009	-0.041	-0.041	-0.046	-0.040	-0.026	-0.000	0.029	0.189		DFAC
EFFP	0.2262	1.0006	1.0006	1.0001	1.0003	0.9988	0.0	-48.7265	173.9891		EFFP
INCID	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001		INCID
DEVM	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000		DEVM
P 0	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694		P 0
P 1	14.669	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.671		P 1
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700		T 0
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700		T 1
ROTOR C											
PCT SPAN	95.00	90.01	85.00	70.01	50.02	30.02	15.01	10.00	4.98		PCT SPAN
DIA	33.235	33.621	34.006	35.163	36.705	38.247	39.405	39.791	40.178		DIA
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		BETA 1
BETA 2	45.766	43.535	40.541	38.984	38.167	37.390	37.315	39.006	41.965		BETA 2
BETA(PRI) 1	52.939	52.478	52.823	53.697	55.229	56.853	58.373	59.392	63.929		BETA(PRI) 1
BETA(PRI) 2	23.391	23.663	24.126	25.519	29.642	33.183	36.859	40.489	46.545		BETA(PRI) 2
V 1	229.06	235.85	235.85	237.10	235.19	231.76	225.93	219.37	183.34		V 1
V 2	298.71	305.70	314.25	321.78	315.47	310.99	300.43	282.20	253.47		V 2
VZ 1	229.05	235.85	235.85	237.08	235.07	231.49	225.52	218.92	182.92		VZ 1
VZ 2	208.37	221.62	238.80	250.09	247.89	246.80	238.51	218.88	188.10		VZ 2
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		V-THETA 1
V-THETA 2	214.02	210.57	204.26	202.40	194.84	188.62	181.80	177.28	169.16		V-THETA 2
VIPRI 1	380.1	387.2	390.3	400.4	412.3	423.5	430.3	430.2	416.4		VIPRI 1
VIPRI 2	227.0	242.0	261.7	277.2	285.4	295.3	298.6	288.3	273.9		VIPRI 2
VTHETA PRI	-303.3	-307.1	-311.0	-322.7	-338.6	-354.5	-366.2	-370.1	-373.9		VTHETA PRI
VTHETA PR2	-90.1	-97.1	-107.0	-119.4	-141.1	-161.4	-178.8	-186.9	-198.5		VTHETA PR2
U 1	303.29	307.12	310.98	322.71	338.58	354.47	366.20	370.06	373.88		U 1
U 2	304.15	307.68	311.21	321.80	335.90	350.02	360.61	364.15	367.69		U 2
M 1	0.2060	0.2122	0.2120	0.2133	0.2116	0.2085	0.2032	0.1573	0.1647		M 1
M 2	0.2665	0.2729	0.2809	0.2879	0.2821	0.2781	0.2683	0.2517	0.2259		M 2
MIPRI 1	0.3419	0.3484	0.3512	0.3603	0.3709	0.3810	0.3870	0.3868	0.3740		MIPRI 1
MIPRI 2	0.2025	0.2160	0.2339	0.2480	0.2552	0.2640	0.2667	0.2572	0.2441		MIPRI 2
TURN(PRI)	29.548	28.814	28.697	28.180	25.595	23.688	21.545	18.940	17.433		TURN(PRI)
UUBAR	0.1594	0.1418	0.0918	0.0545	0.0615	0.0623	0.0771	0.1096	0.1070		UUBAR
LOSS PARA	0.0422	0.0380	0.0248	0.0151	0.0172	0.0176	0.0216	0.0295	0.0264		LOSS PARA
DFAC	0.5655	0.5343	0.4847	0.4630	0.4593	0.4521	0.4525	0.4745	0.4865		DFAC
EFFP	0.7655	0.8132	0.9073	1.0480	0.9982	1.0160	0.9235	0.8313	0.8193		EFFP
EFF	0.7635	0.8116	0.9065	1.0484	0.9982	1.0161	0.9228	0.8299	0.8178		EFF
INCID	1.097	0.200	0.133	-0.360	-0.835	-1.208	-1.067	-0.482	3.282		INCID
DEVM	15.642	14.365	13.207	9.816	8.955	8.318	9.303	12.350	17.661		DEVM
P 1	14.669	14.694	14.694	14.694	14.694	14.694	14.694	14.671	14.562		P 1
P 2	15.574	15.611	15.652	15.724	15.715	15.719	15.685	15.593	15.451		P 2
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700		T 1
T 2	530.420	529.850	529.120	528.370	528.770	528.630	529.280	529.680	529.530		T 2
STATOR B											
PCT SPAN	95.05	90.12	85.15	70.15	50.00	29.85	14.84	9.88	4.94		PCT SPAN
DIA	33.203	33.556	33.910	34.981	36.420	37.859	38.930	39.285	39.637		DIA
BETA 2	45.413	43.165	40.213	38.779	37.915	37.050	36.895	38.530	41.406		BETA 2
BETA 2A	3.930	3.870	4.220	5.470	4.491	4.661	5.442	5.423	5.093		BETA 2A
V 2	300.57	307.90	316.53	323.50	317.68	313.99	304.01	285.78	256.87		V 2
V 2A	231.61	240.57	254.79	276.93	285.23	284.67	283.99	270.27	256.75		V 2A
VZ 2	211.00	224.58	241.71	252.16	250.50	250.34	242.75	223.19	192.34		VZ 2
VZ 2A	231.07	240.02	254.10	275.63	284.24	283.49	282.35	268.68	255.34		VZ 2A
V-THETA 2	214.06	210.64	204.36	202.59	195.12	188.99	182.22	177.72	169.60		V-THETA 2
V-THETA 2A	15.87	16.24	18.75	26.40	22.32	23.11	26.90	25.50	22.75		V-THETA 2A
M 2	0.2682	0.2749	0.2830	0.2895	0.2841	0.2808	0.2716	0.2550	0.2289		M 2
M 2A	0.2060	0.2142	0.2271	0.2473	0.2547	0.2542	0.2534	0.2410	0.2288		M 2A
TURN(PRI)	41.482	39.295	35.992	33.304	33.405	32.348	31.392	30.039	28.235		TURN(PRI)
UUBAR	0.1383	0.1252	0.1122	0.0518	0.0047	0.0021	0.0089	-0.0174	-0.1445		UUBAR
LOSS PARA	0.0447	0.0408	0.0369	0.0175	0.0016	0.0092	0.0034	-0.0066	-0.0556		LOSS PARA
DFAC	0.4429	0.4250	0.3884	0.3289	0.2945	0.2880	0.2603	0.2593	0.2229		DFAC
EFFP	0.6682	0.6874	0.6906	0.8128	0.9768	0.8637	0.9325	1.1603	155.7948		EFFP
INCID	-1.559	-3.036	-5.258	-4.896	-4.336	-5.348	-6.476	-5.400	-3.135		INCID
DEVM	16.961	16.724	16.954	17.804	16.609	17.365	18.945	19.223	19.237		DEVM
P 2	15.574	15.611	15.652	15.724	15.715	15.719	15.685	15.593	15.451		P 2
P 2A	15.469	15.511	15.557	15.678	15.711	15.698	15.678	15.605	15.531		P 2A
T 2	530.420	529.850	529.120	528.370	528.770	528.630	529.280	529.680	529.530		T 2
T 2A	530.420	529.850	529.120	528.370	528.770	528.630	529.280	529.680	529.530		T 2A
UUBAR FS	0.1477	0.1259	0.1047	0.0736	0.0466	0.0371	0.0655	0.0848	0.1261		UUBAR FS
P2 FS	15.582	15.614	15.654	15.724	15.732	15.742	15.732	15.670	15.622		P2 FS
LOSS PARA FS	0.0477	0.0422	0.0344	0.0248	0.0157	0.0209	0.0250	0.0321	0.0485		LOSS PARA FS

Table A-3. Blade Element Performance (Continued)

Stage C Rotor C - Stator B
 CALCULATIONS USING TRANSLATED VALUES
 PERCENT EQUIVALENT ROTOR SPEED = 46.97 EQUIVALENT ROTOR SPEED = 1977.55 EQUIVALENT WEIGHT FLOW = 50.04

INLET											
PCT SPAN	96.61	91.52	86.39	70.81	49.79	28.83	13.41	8.35	3.34	PCT SPAN	
DIA	33.138	33.570	34.006	35.328	37.113	38.892	40.202	40.631	41.056	DIA	
BETA 0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 0	
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1	
V 0	193.51	193.51	193.51	193.51	193.51	193.51	193.51	193.51	193.51	V 0	
V 1	184.07	197.71	198.58	200.11	200.45	196.87	192.14	182.49	141.27	V 1	
VZ 0	193.51	193.51	193.51	193.51	193.49	193.47	193.46	193.45	193.44	VZ 0	
VZ 1	184.07	197.71	198.58	200.10	200.43	196.83	192.08	182.44	141.22	VZ 1	
V-THETA 0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 0	
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1	
M 0	0.1739	0.1739	0.1739	0.1739	0.1739	0.1739	0.1739	0.1739	0.1739	M 0	
M 1	0.1653	0.1777	0.1784	0.1798	0.1801	0.1769	0.1726	0.1639	0.1267	M 1	
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN	
UUBAR	0.1271	-0.0065	-0.0065	-0.0065	-0.0065	-0.0065	-0.0065	0.0750	0.4369	UUBAR	
DFAC	0.049	-0.022	-0.026	-0.034	-0.036	-0.017	0.007	0.057	0.270	DFAC	
EFFP	-3.1401	1.1726	1.1388	1.1019	1.0968	1.2241	0.6876	3.0139	13.9592	EFFP	
INCID	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	INCID	
DEVM	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	DEVM	
P 0	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	P 0	
P 1	14.655	14.696	14.696	14.696	14.696	14.696	14.696	14.671	14.560	P 1	
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0	
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1	
ROTOR C											
PCT SPAN	95.00	90.01	85.00	70.01	50.02	30.02	15.01	10.00	4.98	PCT SPAN	
DIA	33.235	33.621	34.006	35.163	36.705	38.247	39.405	39.791	40.178	DIA	
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1	
BETA 2	50.564	49.474	47.067	44.028	43.129	42.722	43.577	46.369	50.385	BETA 2	
BETA(PRI) 1	56.033	54.491	54.709	55.501	56.787	58.497	59.936	61.449	67.372	BETA(PRI) 1	
BETA(PRI) 2	17.358	22.342	20.797	21.905	26.073	30.128	35.052	37.977	41.783	BETA(PRI) 2	
V 1	192.65	206.62	207.54	209.14	209.11	205.07	200.22	190.23	147.28	V 1	
V 2	295.38	282.43	296.14	308.34	304.45	299.02	284.34	272.38	259.07	V 2	
VZ 1	192.65	206.62	207.54	209.12	209.01	204.83	199.86	189.84	146.94	VZ 1	
VZ 2	187.62	183.52	201.71	221.67	222.09	219.45	205.69	187.66	164.95	VZ 2	
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1	
V-THETA 2	228.13	214.68	216.82	214.28	208.04	202.66	195.71	196.85	199.29	V-THETA 2	
V(PRI) 1	344.8	355.7	359.2	369.2	381.6	392.1	399.1	397.4	382.0	V(PRI) 1	
V(PRI) 2	196.6	198.4	215.8	239.0	247.4	254.1	251.7	238.5	221.6	V(PRI) 2	
VTHETA PRI	-286.0	-289.6	-293.2	-304.3	-319.2	-334.2	-345.3	-348.9	-352.5	VTHETA PRI	
VTHETA PR2	-58.6	-75.4	-76.6	-89.1	-108.7	-127.4	-144.3	-146.5	-147.4	VTHETA PR2	
U 1	285.96	289.57	293.21	304.27	319.24	334.21	345.28	348.91	352.52	U 1	
U 2	286.78	290.10	293.43	303.41	316.71	330.02	340.01	343.34	346.68	U 2	
M 1	0.1731	0.1857	0.1865	0.1880	0.1880	0.1843	0.1799	0.1709	0.1322	M 1	
M 2	0.2631	0.2515	0.2640	0.2752	0.2717	0.2668	0.2534	0.2424	0.2304	M 2	
M(PRI) 1	0.3098	0.3197	0.3229	0.3319	0.3430	0.3524	0.3587	0.3570	0.3428	M(PRI) 1	
M(PRI) 2	0.1751	0.1767	0.1924	0.2133	0.2208	0.2267	0.2243	0.2123	0.1971	M(PRI) 2	
TURN(PRI)	38.674	32.149	33.912	33.598	30.721	28.385	24.915	23.510	25.643	TURN(PRI)	
UUBAR	0.1071	0.1426	0.0957	0.0363	0.0303	0.0405	0.0725	0.1061	0.0839	UUBAR	
LOSS PARA	0.0295	0.0386	0.0265	0.0104	0.0088	0.0118	0.0208	0.0296	0.0224	LOSS PARA	
DFAC	0.6212	0.6189	0.5782	0.5310	0.5266	0.5252	0.5394	0.5736	0.6052	DFAC	
EFFP	0.7413	0.7008	0.7813	0.9066	0.9304	0.9201	0.8312	0.7743	0.8054	EFFP	
EFF	0.7389	0.6982	0.7792	0.9057	0.9297	0.9192	0.8295	0.7722	0.8034	EFF	
INCID	4.191	2.212	2.019	1.444	0.724	0.438	0.497	1.578	6.729	INCID	2.189
DEVM	9.609	13.044	9.878	6.203	5.387	5.266	7.497	9.840	12.899	DEVM	
P 1	14.655	14.696	14.696	14.696	14.696	14.696	14.696	14.671	14.560	P 1	
P 2	15.650	15.595	15.667	15.755	15.775	15.726	15.726	15.673	15.618	P 2	
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1	
T 2	532.000	531.410	530.980	530.200	530.110	530.260	530.920	531.500	531.770	T 2	
STATOR B											
PCT SPAN	95.05	90.12	85.15	70.15	50.00	29.85	14.84	9.88	4.94	PCT SPAN	
DIA	33.203	33.556	33.910	34.961	36.420	37.859	38.930	39.287	39.637	DIA	
BETA 2	50.147	49.025	46.659	43.786	42.831	42.321	43.060	45.761	49.641	BETA 2	
BETA 2A	3.620	3.570	4.240	5.530	5.021	4.881	5.462	5.523	5.403	BETA 2A	
V 2	297.21	284.44	298.27	309.98	306.58	301.85	287.69	275.81	262.56	V 2	
V 2A	200.87	211.84	219.57	244.89	254.20	254.75	256.47	243.49	228.85	V 2A	
VZ 2	190.46	186.51	204.71	223.76	224.74	222.99	209.92	192.16	169.81	VZ 2	
VZ 2A	200.47	211.43	218.97	243.72	253.12	253.61	254.99	242.02	227.48	VZ 2A	
V-THETA 2	228.17	214.75	216.92	214.47	208.34	203.05	196.17	197.34	199.81	V-THETA 2	
V-THETA 2A	12.68	13.19	16.23	23.60	22.24	21.66	24.38	23.40	21.51	V-THETA 2A	
M 2	0.2647	0.2533	0.2659	0.2767	0.2737	0.2694	0.2564	0.2455	0.2335	M 2	
M 2A	0.1782	0.1881	0.1951	0.2180	0.2264	0.2268	0.2283	0.2165	0.2033	M 2A	
TURN(PRI)	46.527	45.455	42.419	38.250	37.791	37.398	37.535	40.168	44.161	TURN(PRI)	
UUBAR	0.1277	0.0191	0.0772	0.0404	0.0037	0.0155	-0.0270	-0.0280	-0.0275	UUBAR	
LOSS PARA	0.0412	0.0062	0.0253	0.0136	0.0013	0.0056	-0.0102	-0.0106	-0.0106	LOSS PARA	
DFAC	0.5589	0.4867	0.4857	0.4191	0.3855	0.3775	0.3357	0.3598	0.3925	DFAC	
EFFP	0.7707	0.9583	0.8360	0.8957	0.9885	0.9480	1.1281	1.1237	1.1118	EFFP	
INCID	3.176	2.824	1.189	0.111	0.579	-0.078	-0.313	1.829	5.101	INCID	
DEVM	16.651	16.424	16.974	17.864	17.139	17.585	18.965	19.323	19.546	DEVM	
P 2	15.650	15.595	15.667	15.755	15.775	15.777	15.726	15.673	15.618	P 2	
P 2A	15.555	15.582	15.609	15.722	15.772	15.765	15.745	15.691	15.634	P 2A	
T 2	532.000	531.410	530.980	530.200	530.110	530.260	530.920	531.500	531.770	T 2	
T 2A	532.000	531.410	530.980	530.200	530.110	530.260	530.920	531.500	531.770	T 2A	
UUBAR FS	0.1360	0.1420	0.1131	0.0771	0.0368	0.0497	0.0737	0.0722	0.1321	UUBAR FS	
P2 FS	15.675	15.692	15.697	15.787	15.802	15.805	15.742	15.742	15.725	P2 FS	
LOSS PARA FS	0.0503	0.0460	0.0370	0.0253	0.0129	0.0179	0.0278	0.0273	0.0509	LOSS PARA FS	
STATOR-L.E.											
STATOR-T.E.											

Table A-3. Blade Element Performance (Concluded)

Stage C Rotor C - Stator B											
CALCULATIONS USING TRANSLATED VALUES											
PERCENT EQUIVALENT ROTOR SPEED = 49.29 EQUIVALENT ROTOR SPEED = 2074.99 EQUIVALENT WEIGHT FLOW = 45.81											
INLET											
PCT SPAN	96.61	91.52	86.39	70.81	49.79	28.83	13.41	8.35	3.34	PCT SPAN	
DIA	33.134	33.570	34.006	35.328	37.113	38.892	40.202	40.631	41.056	DIA	
BETA 0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 0	
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1	
V 0	176.71	176.71	176.71	176.71	176.71	176.71	176.71	176.71	176.71	V 0	
V 1	172.61	179.39	179.39	181.95	181.62	178.33	175.21	170.68	142.23	V 1	
VZ 0	176.71	176.71	176.71	176.71	176.71	176.66	176.66	176.66	176.65	VZ 0	
VZ 1	172.61	179.39	179.39	181.95	181.61	178.30	175.16	170.63	142.18	VZ 1	
V-THETA 0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 0	
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1	
M 0	0.1587	0.1587	0.1587	0.1587	0.1587	0.1587	0.1587	0.1587	0.1587	M 0	
M 1	0.1550	0.1611	0.1611	0.1634	0.1631	0.1602	0.1573	0.1532	0.1276	M 1	
TURN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	TURN	
UUBAR	0.0625	0.0	0.0	0.0	0.0	0.0	0.0	0.0273	0.3085	UUBAR	
DFAC	0.023	-0.015	-0.015	-0.030	-0.028	-0.009	0.008	0.034	0.195	DFAC	
EFFP	-2.8982	0.9993	0.9993	0.9990	0.9984	0.9942	0.9972	1.6706	7.6176	EFFP	
INCID	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	INCID	
DEVM	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	DEVM	
P 0	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.694	P 0	
P 1	14.678	14.694	14.694	14.694	14.694	14.694	14.694	14.687	14.615	P 1	
T 0	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 0	
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1	
ROTOR C											
PCT SPAN	95.00	90.01	85.00	70.01	50.02	30.02	15.01	10.00	4.98	PCT SPAN	
DIA	33.235	33.621	34.006	35.163	36.705	38.247	39.405	39.791	40.178	DIA	
BETA 1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	BETA 1	
BETA 2	52.697	52.763	51.130	47.866	46.542	46.347	49.257	53.639	58.267	BETA 2	
BETA(PRI) 1	58.953	58.331	58.650	59.230	60.525	62.122	63.300	64.131	68.201	BETA(PRI) 1	
BETA(PRI) 2	19.049	23.928	25.656	24.809	28.990	32.888	38.743	41.242	39.499	BETA(PRI) 2	
V 1	180.63	187.43	187.43	190.11	189.42	185.72	182.55	177.89	148.27	V 1	
V 2	297.77	285.92	285.09	302.74	300.32	296.25	278.76	272.19	283.57	V 2	
VZ 1	180.63	187.43	187.43	190.09	189.33	185.50	182.22	177.53	147.94	VZ 1	
VZ 2	176.29	173.01	179.90	203.08	206.48	204.32	181.57	161.19	149.00	VZ 2	
V-THETA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	V-THETA 1	
V-THETA 2	239.97	227.63	221.96	224.48	217.91	214.16	211.07	218.94	240.94	V-THETA 2	
VIPRI 1	350.2	357.0	360.3	371.6	384.8	396.8	405.7	407.0	398.5	VIPRI 1	
VIPRI 2	186.5	189.3	199.5	223.8	243.6	263.2	283.2	214.7	193.5	VIPRI 2	
VTHETA PRI	-200.1	-303.8	-307.7	-319.3	-335.0	-350.7	-362.3	-366.1	-369.9	VTHETA PRI	
VTHETA PR2	-60.9	-76.8	-85.9	-93.9	-114.4	-132.1	-145.7	-141.3	-122.8	VTHETA PR2	
U 1	300.05	303.84	307.66	319.27	334.97	350.68	362.29	366.11	369.89	U 1	
U 2	300.91	304.40	307.89	318.36	332.32	346.28	356.76	360.26	363.76	U 2	
M 1	0.1622	0.1684	0.1684	0.1708	0.1702	0.1668	0.1640	0.1598	0.1331	M 1	
M 2	0.2649	0.2544	0.2538	0.2699	0.2677	0.2641	0.2481	0.2420	0.2522	M 2	
MIPRI 1	0.3145	0.3207	0.3236	0.3338	0.3457	0.3564	0.3644	0.3655	0.3576	MIPRI 1	
MIPRI 2	0.1660	0.1684	0.1767	0.1995	0.2106	0.2172	0.2075	0.1910	0.1721	MIPRI 2	
TURN(PRI)	39.882	34.403	32.994	34.423	31.544	29.255	24.593	22.932	28.756	TURN(PRI)	
UUBAR	0.1835	0.1888	0.1658	0.1095	0.0950	0.1004	0.1608	0.2151	0.2326	UUBAR	
LOSS PARA	0.0501	0.0505	0.0443	0.0306	0.0268	0.0294	0.0438	0.0572	0.0643	LOSS PARA	
DFAC	0.6655	0.6565	0.6317	0.5833	0.5679	0.5669	0.6056	0.6612	0.7293	DFAC	
EFFP	0.7067	0.6908	0.7238	0.8540	0.8793	0.8923	0.7813	0.7410	0.8306	EFFP	
EFF	0.7038	0.6879	0.7212	0.8525	0.8781	0.8911	0.7792	0.7385	0.8287	EFF	
INCID	7.111	6.953	5.960	5.174	4.463	4.065	3.864	4.262	7.560	INCID	
DEVM	11.320	14.630	14.736	9.106	8.303	8.024	11.186	13.103	10.617	DEVM	
P 1	14.678	14.694	14.694	14.694	14.694	14.694	14.694	14.694	14.615	P 1	
P 2	15.708	15.662	15.668	15.778	15.804	15.820	15.749	15.725	15.788	P 2	
T 1	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	518.700	T 1	
T 2	533.120	532.570	532.010	531.200	531.120	531.110	532.020	532.540	532.660	T 2	
STATOR B											
PCT SPAN	95.05	90.12	85.15	70.15	50.00	29.85	14.84	9.88	4.94	PCT SPAN	
DIA	33.203	33.556	33.910	34.981	36.420	37.859	38.930	39.285	39.637	DIA	
BETA 2	52.229	52.258	50.663	47.590	46.208	45.854	48.672	52.860	57.270	BETA 2	
BETA 2A	3.640	3.820	4.500	5.940	5.991	5.161	5.332	5.312	5.153	BETA 2A	
V 2	299.62	287.95	287.12	304.35	302.41	299.06	282.04	275.61	297.43	V 2	
V 2A	198.58	193.92	198.84	225.02	239.29	237.12	230.82	221.54	214.97	V 2A	
VZ 2	179.36	176.26	182.00	205.24	209.20	207.98	186.05	166.24	155.27	VZ 2	
VZ 2A	198.18	193.48	198.23	223.78	237.89	235.96	229.54	220.28	213.76	VZ 2A	
V-THETA 2	240.01	227.70	222.07	224.69	218.22	214.57	211.57	219.49	241.58	V-THETA 2	
V-THETA 2A	12.68	12.92	15.60	23.28	24.96	21.31	21.42	20.48	19.28	V-THETA 2A	
M 2	0.2666	0.2562	0.2556	0.2714	0.2696	0.2666	0.2510	0.2451	0.2557	M 2	
M 2A	0.1760	0.1719	0.1764	0.2000	0.2128	0.2108	0.2050	0.1966	0.1907	M 2A	
TURN(PRI)	44.569	48.437	46.162	41.645	40.192	40.691	43.277	47.479	52.046	TURN(PRI)	
UUBAR	0.1175	0.0558	0.0417	0.0381	-0.0077	0.0236	-0.0163	0.0093	0.1382	UUBAR	
LOSS PARA	0.0780	0.0182	0.0137	0.0128	-0.0027	0.0086	-0.0061	0.0035	0.0532	LOSS PARA	
DFAC	0.5829	0.5703	0.5446	0.4854	0.4347	0.4452	0.4380	0.4739	0.5528	DFAC	
EFFP	0.7955	0.9005	0.9270	0.9183	1.0200	0.9383	1.0480	0.9744	0.6937	EFFP	
INCID	6.258	6.056	5.192	3.915	3.956	3.495	5.299	8.930	12.736	INCID	
DEVM	16.491	16.674	17.234	18.274	18.108	17.865	18.836	19.113	19.297	DEVM	
P 2	15.708	15.662	15.668	15.778	15.804	15.820	15.749	15.725	15.788	P 2	
P 2A	15.619	15.623	15.639	15.748	15.810	15.802	15.760	15.719	15.691	P 2A	
T 2	533.120	532.570	532.010	531.200	531.120	531.110	532.020	532.540	532.660	T 2	
T 2A	533.120	532.570	532.010	531.200	531.120	531.110	532.020	532.540	532.660	T 2A	
UUBAR FS	0.1639	0.1560	0.1229	0.0642	0.0570	0.0664	0.0647	0.0872	0.1314	UUBAR FS	
P2 FS	15.750	15.745	15.732	15.800	15.857	15.855	15.807	15.780	15.782	P2 FS	
LOSS PARA FS	0.0530	0.0508	0.0403	0.0213	0.0199	0.0241	0.0242	0.0365	0.0505	LOSS PARA FS	

APPENDIX B
STATOR B STATIC PRESSURE COEFFICIENTS

$$C_p = \frac{p_{\text{surface}} - p_{2fs}}{(\rho V^2 / 2)_{2fs}}$$

110% Design Equivalent Rotor Speed

Front Airfoil Suction Surface								
Percent Overall Chord	6.6	11.9	16.9	21.9	27.0	32.0	37.1	42.1
Flow*	Static Pressure Coefficient							
125.30	0.18	-0.14	-0.30	-0.53	-0.77	-0.97	-1.24	-1.32
122.43	-0.05	-0.28	-0.34	-0.46	-0.54	-0.52	-0.51	-0.38
118.34	-0.14	-0.32	-0.35	-0.43	-0.49	-0.44	-0.41	-0.28
113.12	-0.25	-0.39	-0.37	-0.43	-0.46	-0.40	-0.35	-0.21
107.10	-0.38	-0.46	-0.40	-0.43	-0.42	-0.33	-0.26	-0.13
101.79	-0.42	-0.47	-0.40	-0.40	-0.37	-0.27	-0.20	-0.08

Front Airfoil Pressure Surface								
Percent Overall Chord	7.0	13.0	18.0	23.1	28.1	33.1	38.1	43.1
Flow*	Static Pressure Coefficient							
125.30	--	-1.33	-0.98	-0.76	-0.62	-0.51	-0.42	-0.37
122.43	-0.10	-0.05	-0.03	0.05	0.12	0.19	0.27	0.29
118.34	0.08	0.10	0.11	0.17	0.23	0.28	0.35	0.37
113.12	0.24	0.22	0.21	0.26	0.31	0.35	0.41	0.42
107.10	0.37	0.33	0.31	0.34	0.38	0.41	0.46	0.45
101.79	0.41	0.38	0.35	0.37	0.40	0.43	0.47	0.46

Rear Airfoil Suction Surface								
Percent Overall Chord	56.9	61.9	67.3	72.2	77.8	82.8	88.0	92.9
Flow*	Static Pressure Coefficient							
125.30	-0.93	-1.31	-1.70	-1.31	-1.01	-0.89	-0.81	-0.77
122.43	-0.27	-0.52	-0.66	-0.65	-0.49	-0.28	-0.03	0.07
118.34	-0.16	-0.37	-0.48	-0.47	-0.34	-0.15	0.08	0.16
113.12	-0.09	-0.26	-0.35	-0.34	-0.22	-0.06	0.15	0.24
107.10	-0.02	-0.14	-0.21	-0.19	-0.10	0.05	0.21	0.29
101.79	0.02	-0.09	-0.16	-0.13	-0.04	0.09	0.25	0.32

*Equivalent Weight Flow (lb/sec)

110% Design Equivalent Rotor Speed

Rear Airfoil Pressure Surface								
Percent Overall Chord	56.0	61.5	66.5	71.7	77.0	82.0	87.5	92.5
Flow*	Static Pressure Coefficient							
125.30	0.28	0.28	0.27	0.24	0.19	0.20	0.13	0.01
122.43	0.60	0.61	0.60	0.59	0.56	0.57	0.52	0.45
118.34	0.64	0.65	0.64	0.63	0.60	0.61	0.57	0.51
113.12	0.68	0.68	0.68	0.66	0.64	0.65	0.61	0.55
107.10	0.69	0.70	0.69	0.68	0.66	0.67	0.64	0.58
101.79	0.69	0.70	0.69	0.68	0.66	0.66	0.64	0.59

*Equivalent Weight Flow (lb/sec)

100% Design Equivalent Rotor Speed

Front Airfoil Suction Surface								
Percent Overall Chord	6.6	11.9	16.9	21.9	27.0	32.0	37.1	42.1
Flow*	Static Pressure Coefficient							
120.83	0.22	-0.13	-0.30	-0.56	-0.80	-0.97	-1.17	-1.11
114.12	0.00	-0.25	-0.32	-0.44	-0.54	-0.53	-0.53	-0.41
108.33	-0.12	-0.31	-0.34	-0.42	-0.47	-0.44	-0.42	-0.30
102.98	-0.21	-0.35	-0.34	-0.40	-0.43	-0.37	-0.34	-0.21
98.54	-0.33	-0.42	-0.36	-0.40	-0.40	-0.33	-0.27	-0.15
94.51	-0.41	-0.45	-0.39	-0.40	-0.38	-0.30	-0.23	-0.11

Front Airfoil Pressure Surface								
Percent Overall Chord	7.0	13.0	18.0	23.1	28.1	33.1	38.1	43.1
Flow*	Static Pressure Coefficient							
120.83	-1.53	-1.31	-1.08	-0.83	-0.64	-0.51	-0.41	-0.35
114.12	-0.16	-0.11	-0.08	0.00	0.08	0.14	0.21	0.24
108.33	0.04	0.06	0.07	0.13	0.20	0.24	0.32	0.34
102.98	0.19	0.18	0.18	0.22	0.28	0.31	0.37	0.37
98.54	0.34	0.30	0.28	0.32	0.35	0.39	0.43	0.43
94.51	0.41	0.36	0.34	0.36	0.39	0.42	0.46	0.44

Rear Airfoil Suction Surface								
Percent Overall Chord	56.9	61.9	67.3	72.2	77.8	82.8	88.0	92.9
Flow*	Static Pressure Coefficient							
120.83	-0.91	-1.26	-1.52	-1.36	-1.02	-0.79	-0.68	-0.66
114.12	-0.33	-0.59	-0.73	-0.72	-0.57	-0.34	-0.07	0.02
108.33	-0.22	-0.43	-0.53	-0.53	-0.40	-0.21	0.04	0.14
102.98	-0.14	-0.31	-0.40	-0.39	-0.27	-0.10	0.12	0.22
98.54	-0.07	-0.20	-0.26	-0.25	-0.15	0.00	0.19	0.27
94.51	-0.02	-0.12	-0.18	-0.16	-0.06	0.06	0.23	0.31

Rear Airfoil Pressure Surface								
Percent Overall Chord	56.0	61.5	66.5	71.7	77.0	82.0	87.5	92.5
Flow*	Static Pressure Coefficient							
120.83	0.19	0.20	0.20	0.17	0.14	0.14	0.08	-0.02
114.12	0.56	0.57	0.57	0.55	0.53	0.53	0.49	0.42
108.33	0.63	0.63	0.63	0.61	0.59	0.60	0.56	0.49
102.98	0.65	0.65	0.64	0.63	0.62	0.62	0.59	0.52
98.54	0.70	0.70	0.68	0.67	0.65	0.65	0.62	0.57
94.51	0.70	0.70	0.69	0.67	0.66	0.65	0.62	0.56

*Equivalent Weight Flow (lb/sec)

90% Design Equivalent Rotor Speed

Front Airfoil Suction Surface								
Percent Overall Chord	6.6	11.9	16.9	21.9	27.0	32.0	37.1	42.1
Flow*	Static Pressure Coefficient							
112.52	0.23	-0.13	-0.31	-0.57	-0.81	-0.95	-1.11	-1.04
107.07	0.06	-0.20	-0.30	-0.45	-0.56	-0.59	-0.62	-0.51
100.49	-0.07	-0.26	-0.31	-0.41	-0.47	-0.46	-0.45	-0.34
95.04	-0.17	-0.32	-0.33	-0.40	-0.43	-0.40	-0.37	-0.25
88.84	-0.28	-0.38	-0.34	-0.38	-0.38	-0.33	-0.28	-0.16
83.77	-0.38	-0.42	-0.36	-0.37	-0.36	-0.28	-0.21	-0.10

Front Airfoil Pressure Surface								
Percent Overall Chord	7.0	13.0	18.0	23.1	28.1	33.1	38.1	43.1
Flow*	Static Pressure Coefficient							
112.52	-1.59	-1.33	-1.04	-0.76	-0.57	-0.45	-0.36	-0.29
107.07	-0.36	-0.24	-0.19	-0.11	-0.03	0.03	0.11	0.13
100.49	-0.05	-0.01	0.01	0.07	0.14	0.19	0.26	0.28
95.04	0.14	0.14	0.14	0.19	0.24	0.28	0.35	0.35
88.84	0.31	0.27	0.26	0.29	0.33	0.36	0.41	0.40
83.77	0.41	0.35	0.34	0.36	0.39	0.41	0.45	0.43

Rear Airfoil Suction Surface								
Percent Overall Chord	56.9	61.9	67.3	72.2	77.8	82.8	88.0	92.9
Flow*	Static Pressure Coefficient							
112.52	-0.92	-1.27	-1.48	-1.41	-1.13	-0.87	-0.71	-0.65
107.07	-0.48	-0.73	-0.87	-0.87	-0.71	-0.46	-0.17	-0.07
100.49	-0.30	-0.52	-0.63	-0.64	-0.51	-0.30	-0.03	0.08
95.04	-0.20	-0.39	-0.48	-0.48	-0.36	-0.18	0.06	0.18
88.84	-0.11	-0.24	-0.31	-0.31	-0.21	-0.05	0.15	0.26
83.77	-0.03	-0.15	-0.20	-0.19	-0.10	0.04	0.21	0.31

Rear Airfoil Pressure Surface								
Percent Overall Chord	56.0	61.5	66.5	71.7	77.0	82.0	87.5	92.5
Flow*	Static Pressure Coefficient							
112.52	0.20	0.20	0.20	0.18	0.14	0.14	0.08	-0.03
107.07	0.52	0.52	0.51	0.50	0.47	0.48	0.43	0.35
100.49	0.59	0.60	0.59	0.57	0.55	0.56	0.51	0.45
95.04	0.64	0.65	0.64	0.63	0.61	0.62	0.57	0.51
88.84	0.68	0.68	0.66	0.66	0.63	0.63	0.60	0.54
83.77	0.68	0.68	0.67	0.67	0.64	0.65	0.62	0.58

*Equivalent Weight Flow (lb/sec)

70% Design Equivalent Rotor Speed

Front Airfoil Suction Surface								
Percent Overall Chord	6.6	11.9	16.9	21.9	27.0	32.0	37.1	42.1
Flow*	Static Pressure Coefficient							
93.06	0.23	-0.12	-0.29	-0.53	-0.72	-0.83	-0.96	-0.90
86.79	0.12	-0.17	-0.29	-0.45	-0.57	-0.61	-0.66	-0.57
79.76	-0.01	-0.22	-0.29	-0.40	-0.47	-0.47	-0.48	-0.38
73.55	-0.12	-0.28	-0.30	-0.37	-0.41	-0.39	-0.37	-0.27
68.37	-0.26	-0.35	-0.32	-0.36	-0.36	-0.32	-0.28	-0.17
63.33	-0.35	-0.39	-0.34	-0.35	-0.33	-0.27	-0.21	-0.10

Front Airfoil Pressure Surface								
Percent Overall Chord	7.0	13.0	18.0	23.1	28.1	33.1	38.1	43.1
Flow*	Static Pressure Coefficient							
93.06	-1.60	-1.34	-0.98	-0.73	-0.53	-0.41	-0.31	-0.27
86.79	-0.69	-0.37	-0.27	-0.20	-0.13	-0.07	0.00	0.02
79.76	-0.11	-0.07	-0.04	0.03	0.09	0.14	0.21	0.22
73.55	0.09	0.09	0.10	0.15	0.20	0.24	0.30	0.30
68.37	0.27	0.24	0.23	0.26	0.29	0.32	0.37	0.36
63.33	0.40	0.35	0.33	0.34	0.37	0.39	0.42	0.40

Rear Airfoil Suction Surface								
Percent Overall Chord	56.9	61.9	67.3	72.2	77.8	82.8	88.0	92.9
Flow*	Static Pressure Coefficient							
93.06	-0.86	-1.14	-1.31	-1.29	-1.12	-0.90	-0.65	-0.57
86.79	-0.60	-0.84	-0.97	-1.00	-0.87	-0.66	-0.36	-0.16
79.76	-0.38	-0.59	-0.70	-0.72	-0.60	-0.40	-0.12	0.04
73.55	-0.26	-0.43	-0.52	-0.53	-0.42	-0.25	-0.01	0.14
68.37	-0.14	-0.28	-0.34	-0.34	-0.24	-0.10	0.11	0.24
63.33	-0.06	-0.16	-0.20	-0.19	-0.11	0.01	0.18	0.30

Rear Airfoil Pressure Surface								
Percent Overall Chord	56.0	61.5	66.5	71.7	77.0	82.0	87.5	92.5
Flow*	Static Pressure Coefficient							
93.06	0.25	0.25	0.23	0.21	0.18	0.18	0.12	0.01
86.79	0.47	0.46	0.45	0.44	0.41	0.41	0.36	0.28
79.76	0.57	0.56	0.55	0.54	0.52	0.52	0.48	0.41
73.55	0.60	0.60	0.60	0.59	0.57	0.57	0.53	0.47
68.37	0.65	0.64	0.64	0.63	0.61	0.60	0.57	0.52
63.33	0.68	0.67	0.66	0.65	0.63	0.63	0.60	0.55

*Equivalent Weight Flow (lb/sec)

50% Design Equivalent Rotor Speed

Front Airfoil Suction Surface								
Percent Overall Chord	6.6	11.9	16.9	21.9	27.0	32.0	37.1	42.1
Flow*	Static Pressure Coefficient							
68.43	0.23	-0.10	-0.27	-0.48	-0.64	-0.75	-0.83	-0.78
64.69	0.17	-0.14	-0.28	-0.46	-0.58	-0.66	-0.69	-0.63
59.70	0.06	-0.18	-0.28	-0.41	-0.49	-0.53	-0.52	-0.46
55.83	-0.04	-0.23	-0.29	-0.38	-0.43	-0.45	-0.42	-0.35
50.04	-0.21	-0.32	-0.32	-0.37	-0.38	-0.36	-0.30	-0.21
45.81	-0.31	-0.36	-0.32	-0.33	-0.32	-0.27	-0.21	-0.10

Front Airfoil Pressure Surface								
Percent Overall Chord	7.0	13.0	18.0	23.1	28.1	33.1	38.1	43.1
Flow*								
68.43	-1.54	-1.25	-0.89	-0.61	-0.45	-0.34	-0.27	-0.24
64.69	-1.09	-0.59	-0.37	-0.27	-0.20	-0.15	-0.08	-0.08
59.70	-0.24	-0.20	-0.16	-0.09	0.02	0.04	0.10	0.10
55.83	-0.06	-0.03	-0.01	0.04	0.10	0.15	0.22	0.21
50.04	0.22	0.19	0.19	0.22	0.25	0.29	0.34	0.33
45.81	0.41	0.35	0.33	0.34	0.38	0.40	0.43	0.41

Rear Airfoil Suction Surface								
Percent Overall Chord	56.9	61.9	67.3	72.2	77.8	82.8	88.0	92.9
Flow*								
68.43	-0.81	-1.05	-1.19	-1.21	-1.06	-0.83	-0.58	-0.45
64.69	-0.70	-0.93	-1.08	-1.10	-0.98	-0.77	-0.49	-0.25
59.70	-0.52	-0.71	-0.84	-0.87	-0.75	-0.56	-0.29	-0.07
55.83	-0.38	-0.56	-0.67	-0.70	-0.59	-0.42	-0.17	0.04
50.04	-0.21	-0.36	-0.44	-0.46	-0.37	-0.21	-0.01	0.18
45.81	-0.08	-0.19	-0.24	-0.24	-0.16	-0.03	0.14	0.29

Rear Airfoil Pressure Surface								
Percent Overall Chord	56.0	61.5	66.5	71.7	77.0	82.0	87.5	92.5
Flow*								
68.43	0.27	0.26	0.25	0.23	0.21	0.20	0.14	0.04
64.69	0.42	0.42	0.40	0.38	0.36	0.35	0.30	0.21
59.70	0.51	0.50	0.49	0.47	0.46	0.46	0.41	0.34
55.83	0.57	0.56	0.55	0.54	0.52	0.51	0.47	0.41
50.04	0.64	0.63	0.62	0.61	0.60	0.59	0.56	0.51
45.81	0.70	0.69	0.68	0.67	0.66	0.65	0.62	0.57

*Equivalent Weight Flow (lb/sec)

APPENDIX C DEFINITIONS

Definitions of Symbols

A_A	Flowpath annular area, ft^2
a_o	Inlet relative stagnation velocity of sound, ft/sec
c	Chord length, inches
C_p	Static pressure coefficient
d	Diameter, inches
D	Diffusion factor
g_c	Gravitational acceleration, $32.174 \text{ lb}_m - \text{ft}/\text{lb}_f - \text{sec}^2$
i_m	Incidence angle, degree from axial direction
M	Mach number
N	Rotor speed, rpm
P	Total pressure, psia
PR	Rotor tip static pressure ratio (ratio of local static pressure to static pressure at - 10% axial chord)
p	Static pressure, psia
R	Gas constant for air, $53.34 \text{ ft-lbf}/\text{lb}_m - ^\circ\text{R}$
r	Radius, inches
S	Blade passage gap (leading edge), inches
t	Blade maximum thickness, inches
T	Total temperature, $^\circ\text{R}$
T_s	Static temperature, $^\circ\text{R}$
U	Rotor speed, ft/sec
V	Velocity, ft/sec
W	Actual flowrate, lb_m/sec
β	Air angle, degree from axial direction

Definitions of Symbols (Continued)

γ	Ratio of specific heats
γ°	Blade-chord angle, degree from axial direction
δ	Ratio of total pressure to NASA standard sea level pressure of 14.694 psia
δ°	Deviation angle, degree
η	Efficiency
θ	Ratio of total temperature to NASA standard sea level temperature of 518.7°R
κ	Blade metal angle, degree from axial direction
ρ	Density, lbf/sec ² /ft ⁴
σ	Solidity, chord divided by blade spacing (c/S)
ϕ	Blade camber angle, $\kappa_1 - \kappa_2$, degree
$\bar{\omega}$	Loss coefficient
$\bar{\omega} \cos\beta/2\sigma$	Loss parameter

Subscripts

0	Compressor inlet (bellmouth)
1	Rotor inlet
2	Rotor exit/stator inlet
2A	Stator exit
ad	Adiabatic
f	Force
fs	Freestream value
id	Isentropic condition
L	Local
m	Mean or mass
le	Leading edge

Definitions of Symbols (Concluded)

Subscripts (Continued)

p	Polytropic
te	Trailing edge
s	Static condition
z	Axial component
θ	Tangential component

Superscripts:

'	Related to rotor blade
-	Mass average value
*	Choke flow condition

Definitions of Overall Performance Variables

Pressure ratio:

$$\text{Rotor: } \frac{\bar{P}_2}{\bar{P}_1} \qquad \text{Stage: } \frac{\bar{P}_{2A}}{\bar{P}_1}$$

Equivalent flow:

$$\frac{W\sqrt{\theta}}{\delta}$$

Equivalent rotor speed:

$$N/\sqrt{\theta}$$

Adiabatic efficiency:

$$\text{Rotor: } \eta_{ad} = \frac{(\bar{P}_2/\bar{P}_1)^{\frac{\gamma-1}{\gamma}} - 1}{\bar{T}_{2A}/518.7 - 1} \qquad \text{Stage: } \eta_{ad} = \frac{(\bar{P}_{2A}/\bar{P}_1)^{\frac{\gamma-1}{\gamma}} - 1}{\bar{T}_{2A}/518.7 - 1}$$

Definitions of Overall Performance Variables (Concluded)

Polytropic efficiency:

$$\text{Rotor: } \eta_p = \frac{\frac{\gamma - 1}{\gamma} \ln (\bar{P}_2 / \bar{P}_1)}{\ln (\bar{T}_2 / 518.7)} \quad \text{Stator: } \eta_p = \frac{\frac{\gamma - 1}{\gamma} \ln (\bar{P}_{2A} / \bar{P}_2)}{\ln (\bar{T}_{s2A} / \bar{T}_{s2})}$$

Definitions of Blade Element Performance Variables

Incidence angle:

$$\text{Rotor: } i_m = \beta'_1 - \kappa_{le} \quad \text{Stator: } i_m = \beta_2 - \kappa_{le}$$

Diffusion factor:

$$\text{Rotor: } D = 1 - \frac{V'_2}{V'_1} + \frac{d_2 V_{\theta 2} - d_1 V_{\theta 1}}{(d_1 + d_2) V'_1 \sigma}$$

$$\text{Stator: } D = 1 - \frac{V_{2A}}{V_2} - \frac{d_2 V_{\theta 2} - d_{2A} V_{\theta 2A}}{(d_2 + d_{2A}) V_2 \sigma}$$

Deviation angle:

$$\text{Rotor: } \delta^\circ = \beta'_2 - \kappa_{te} \quad \text{Stator: } \delta^\circ = \beta_{2A} = \kappa_{te}$$

Loss coefficient:

$$\text{Rotor: } \bar{\omega}' = \frac{(\bar{P}'_2)_{id} - P'_2}{\bar{P}'_1 - p_1}$$

Definitions of Blade Element Performance Variables (Concluded)

where:

$$(P'_2)_{id} = P'_1 \left\{ 1 + \frac{\gamma - 1}{2} \left(\frac{U_2^2}{a_{o1}^2} \right) \left[1 - \left(\frac{d_1}{d_2} \right)^2 \right] \right\}^{\frac{\gamma}{\gamma - 1}}$$

$$P' \text{ is found from } p/P' = \left[1 + \frac{\gamma - 1}{2} M'^2 \right]^{\frac{\gamma}{1 - \gamma}}$$

and M' is calculated using trigonometric functions and the measurements of U , β , P , and p .

$$\text{Stator: } \bar{\omega} = \frac{P_2 - \bar{P}_{2A}}{P_2 - p_2} \quad \bar{\omega}_{fs} = \frac{P_{2A_{fs}} - \bar{P}_{2A}}{P_{2A_{fs}} - p_2}$$

where:

$P_{2A_{fs}}$ = stator exit average freestream total pressure from wake rakes

P_2 = stator inlet total pressure from 20-deg wedge probes

Rotor tip static pressure ratio:

$$PR = \frac{P_L}{p @ - 10\% \text{ axial chord}}$$

Stator static pressure coefficient:

$$C_p = \frac{P_{\text{surface}} - P_{2_{fs}}}{(\rho V^2 / 2)_{2_{fs}}}$$

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